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BIOLOGICAL NOTES ON IMPORTANT OPUNTIA INSECTS OF THE UNITED STATES [1]

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INTRODUCTION

The general data recorded in this paper were secured during the writer's North American work in connection with the Australian Commonwealth Prickly-pear Board's project for the biological control of the prickly-pear pests acclimated in Queensland and New South Wales. An earlier paper on this subject was published in the July, 1925, number of this journal.

A Species Attacking the New Growth

MIMORISTA FLAVIDISSIMALIS Grote [2]

DESCRIPTIVE

Adult. The adult, expanding about one inch, is bright yellow with darker markings arranged in four irregular transverse bands on the wings. These markings vary from an inconspicuous brown to a distinct blackish-brown color.

Egg. To the unaided eye the egg appears as a tiny, subcircular, irridescent disc attached to the flat surface of the joint. The finely roughened surface is very slightly but regularly convexed. The disc measures 0.75 mm. in diameter.

Larva. Full-grown larvæ measure about one-half inch in length, and are of a yellowish-white color.

Pupa. The pupa is about two-fifths of an inch long, of a polished light-brown color, with the head blackish. It rests against the cactus joint and is covered by a whitish, convexed cocoon of thin, tightly woven material. Pupation usually takes place in wrinkles of dried joints.

LIFE HISTORY

The eggs are deposited singly or in small groups on the newly formed joints, usually near the upper edges. Often two or

1 For determinations of species mentioned herein the author is indebted to the appropriate specialists of the Taxonomic Division, United States Bureau of Entomology.

2 Order Lepidoptera, Family Pyralidæ.

more eggs overlap. The extremes of the incubation period were not determined, but in midsummer it is from three to five days. Soon after hatching the larvæ spin a delicate web, beneath which they feed, either singly or several beneath one web. They are not entirely external feeders, for they are frequently found within the young joints or *nopalitos*.[3] When fully developed, the larvæ spin their characteristic cocoons on the joints which have succumbed to their attack, or occasionally on nearby living joints. Duration of the larval and the pupal stages were not independently determined.

During midsummer a generation is produced in four weeks. The shortest life cycle was recorded at Uvalde, Texas, in June, 1921. Newly emerged adults were caged on June 1 with plants bearing *nopalitos*. The first moths of the succeeding generation appeared on June 26, while the peak of emergence was reached on June 29. From the four females originally placed in this cage were reared 221 adults of the next generation. These figures indicate a minimum egg-deposition of fifty-five per female, but the actual number laid was probably in excess of the number of individuals successfully reaching the imaginal condition.

In the lower Rio Grande Valley, where *M. flavidissimalis* is most abundant, the species appears to have about eight generations annually. The first generation is completed at Brownsville, Texas, early in April. The last generation of autumn, all stages of which show a greatly retarded development, extends over the mild winter. The pupal condition is undoubtedly the stage in which the species passes the winter farther north.

HABITS AND FOOD PLANTS

During the day the adults rest on shaded parts of the plant. At dusk they may be seen flying about among the cactus clumps, usually alighting on the young joints. Mating and oviposition have not been observed, but these activities evidently transpire at night.

This species has never been found attacking any cacti other than the platyopuntias. Moreover, in the field its attack was observed to be confined to the young, tender joints of these

[3] Nopalito is a Spanish term which refers to a definite stage in the growth of the Opuntia joint, being applied to the tender, newly formed joint before it has thrown off the rudimentary true leaves.

cacti. Among the Opuntias, however, no restriction to species was noted.

On one occasion a distinct variation in feeding habit was observed in a cage poorly supplied with *nopalitos*. The heavy, basal joints ceased putting forth new joints, leaving the large number of larvæ with an inadequate supply of dying *nopalitos*. When the cage was dismantled all *nopalitos* were dead, being very dry and hard. By chance, it was found that considerable numbers of the larvæ had successfully met this condition by boring into the mature joints at the points of attachment of the dried *nopalitos*. Some individuals had penetrated the tough fiber to a depth of two inches, acting much as other internal feeders.

INJURY

Owing to the small size and tenderness of the joints against which *Mimorista flavidissimalis* larvæ direct their attack, these parts are very quickly killed. Even when only a few larvæ are present their work weakens the attachment of the *nopalito* to the plant and it falls to the ground where, if not completely killed by the insects, it has not the substance to establish itself. Occasionally, joints recover from the attacks of the larvæ, but they remain deformed. Such recovery is believed to be due to the eggs having been laid on small young joints which had toughened considerably.

The many generations during the growing season and its attack against the new growth render this species a formidable enemy of the prickly-pears in the region where it is abundant. Were its distribution more general, it would rank among the most important Opuntia insects of the United States.

DISTRIBUTION

Hunter *et al.*[4] noted the species as having a restricted range, recording it in Texas from Hallettsville and San Antonio, southward, and in Arizona from Tucson. While the writer has taken specimens at Uvalde, San Antonio, Victoria, and Brownsville, Texas, and at Piedras Negras, Mexico, the species has been observed to be of importance only in the lower Rio Grande Valley. This distribution seems certainly to be correlated with

4 The Principal Cactus Insects of the United States, by Hunter, W. D., Pratt, F. C., and Mitchell, J. D., U. S. D. A. Bur. Ent. Bull., 113, 1912.

moisture. Since young joints are required monthly throughout the summer for oviposition and larval development, those sections of the cactus country which are very dry during midsummer are not suited to continuous propagation of large numbers of this species.

In this connection it is of interest to note that the so-called prickly-pear rat (*Neotoma micropus* Baird), in pruning the Opuntia plants during feeding, stimulates the production of new joints which, occurring throughout the summer, constitute a considerable factor in the propagation of this insect.

NATURAL ENEMIES

The foremost parasite of *Mimorista flavidissimalis* is a species of *Casinaria,* probably *infesta* (Cresson). A collection of 100 Mimorista larvæ from Brownsville, Texas, in June produced 20 of these ichneumonid parasites. Another parasite, less abundant than the former, is *Eiphosoma bruesi* Cushman.

COTTONY COCHINEAL INSECTS: DACTYLOPIUS spp.[4]

Two species of wild or cottony cochineal insects are important enemies of Opuntia in the United States. These are *Dactylopius tomentosus* Lamarck and *D. confusus* Cockerell. As implied by the common names, these forms are distinguished from the dye-producing species by the profuse covering of pure white wax in contrast to the light, powdery covering of the latter.

DACTYLOPIUS TOMENTOSUS (Lamarck)

The adult female is hidden by the tomentose wax covering. These white clumps contain several female insects. The individual clumps are of somewhat greater extent and are hardly so symmetrical as are those of *D. confusus* Ckll. The insects themselves are soft-bodied, rounded, and of a dull-reddish color.

The adult males are rarely seen in the field, although they are produced in abundance. The body of the male is 1 mm. long, while its length, inclusive of the wings, is nearly 2 mm. From the posterior end of the abdomen project two slender processes

[4] Order Hemiptera, Family Coccidæ.

slightly more than 2 mm. in length. The male is red, with the wings and abdominal processes pure white.

SEASONAL HISTORY

The mature females produce living young which crawl about over the plant until a suitable feeding place is found. Here they insert their probosces and suck the juices of the plant. After once becoming settled these "crawlers" are unable to move to another location. The males are produced in small white tubes which appear on end in the waxy covering of the female. Several generations are produced during the summer. It seems that a generation is produced in from five to seven weeks. The crawlers of the last generation in autumn seek sheltered places to settle themselves for the winter. It has been observed that the overwintering brood lives upon the roots or stems beneath the surface of the ground or next to the ground on prostrate-growing or fallen joints.

HABITS

The summer broods of crawlers travel upward and cluster on the topmost spines of the plant upon which they were developed. Undoubtedly, this habit greatly influences the dissemination of the species, for such tiny creatures, with the few strands of the tomentum already formed, would be carried very considerable distances by the wind.

FOOD PLANTS

Dactylopius tomentosus Lamarck has been found only on Opuntia. In the field, however, the species occurs as distinct biological strains or races. Thus, cochineals have been found feeding upon certain prickly-pears which refused to feed upon certain other species. The Texas strain has been found to prefer *Opuntia lindheimeri* Engelm., while the strain from Tucson, Arizona, lives upon a white-spined Opuntia, and the Chico, California, strain prefers prickly-pear different from either of the former. After due time, and under the stress of starvation, a very small percentage of a new generation may be induced to settle upon a species of Opuntia which was previously refused when its favorite type was also available. While it is known that these strains can adapt themselves to groups of Opuntias other than those preferred, the extent of such capabilities has not been determined. Structurally, these strains

were not distinguishable, and all were determined as belonging to this species.

INJURY TO PLANT

The effect of the sucking of these insects is to devitalize the plant and finally to cause affected joints to dry out completely. The new growth is effectually checked when these insects are abundant, for the crawlers settle upon it in preference to the older joints and quickly cause it to drop from the plant. After its severance from the plant the insects, being unable to migrate, continue their sucking until it is completely killed. Thus, the injury of this cochineal is effected by preventing new growth and by a gradual killing of the older terminal joints.

DISTRIBUTION

Dactylopius tomentosus Lamarck has been secured by the writer from Chico, California; Tucson, Arizona; and Uvalde, Texas. Hunter *el al.*[5] recorded the species from New Mexico, Arizona, and Mexico.

DACTYLOPIUS CONFUSUS (Cockerell)

This insect presents very much the same appearance as the foregoing species, but the white clumps are somewhat smoother and appear a little more rounded. Its seasonal history, habits, and character of injury are very similar to those of its congenitor. This species seems to be even more closely restricted in feeding habits than the preceding species. The writer has collected it in Florida at Miami, Coconut Grove, Larkin, West Palm Beach, Palatka, and Gainesville, and at Brownsville, Texas.

NATURAL ENEMIES OF THE COCHINEALS

Aside from the eleven enemies recorded,[5] the writer has found *Zophodia quadricolorella* (Dyar) [6] to be a most important predator in material from both Brownsville, Texas, and Miami, Florida. The larvæ of this moth burrow beneath the waxy covering of the cochineal clumps and devour the soft-bodied coccids. When fully developed, the predaceous larvæ spin cocoons beneath the cochineal wax, leaving no external evidence that the waxy material of the former inhabitant now

[5] U. S. D. A. Bur. Ent. Bull., 113, 1912.

[6] This species is assigned to the genus *Poujadia* in the Barnes and McDunnough catalogue, but Doctor Dyar tells me that it is a Phycetine and should go in *Zophodia*.

covers only the cocoons of a predator. As many as three cocoons of this moth have been found under a single cochineal clump, while, occasionally, four or five small larvæ have been found beneath a waxy mass feeding on the cochineals.

A Species Inhibiting the Development of Seeds

ASPHONDYLIA OPUNTIÆ Felt [7]

The mosquito-like adult has never been seen in the field by the writer. During March the puparia may be seen protruding from the previous season's fruits, quite commonly upward of fifty projecting from one fruit. The midges issue in the canyon country north of Uvalde, Texas, during the latter half of March. At this time the flowers of Opuntia have not opened. In early May a slight yellowing of certain fruits indicates the presence of larvæ, which may be found in the interstices formed by the rudimentary seeds. They are extremely small and are barely distinguishable to the naked eye as tiny dots of light yellow. There are no feeding marks to be seen on the seeds, and the fruits show a normal degree of turgidity.

Later observations showed no change except a deepening of the yellow color of affected fruits, and perhaps the production of one or more small joints or fruits from the infested fruit. In August the larvæ were of the same size and color as when first observed, and no damage to the seeds was apparent. The seeds showed just the same state of development observed in May. In October no changes in the larvæ or seeds were apparent. Likewise, in December no changes could be noted.

During midwinter the larvæ evidently have a greatly accelerated development, since they attain a fair size and destroy the interior of the fruit just before the puparia protrude in March.

There is, then, only one generation annually. From the above observations it seems that the larvæ are greatly retarded in their development, so that for about nine months they undergo no perceptible changes. Moreover, it seems that their effect of transforming the fruit functionally from a reproductive to a vegetative part is accomplished without entering the seeds or fleshy interior of the fruit. This inhibitory effect upon the seeds may be caused by a secretion.

This species is widely distributed. It is recorded [8] from

[7] Order Diptera, Family Cecidomyiidæ.
[8] U. S. D. A. Bur. Ent. Bull., 113, 1912.

many Texas localities and ranges southward to San Luis Potosi, Mexico, and westward to Los Angeles, California.

An Opuntia Longicorn

MONEILEMA CRASSA Le Conte [9]

The large, robust, wingless adult is from three-fifths to four-fifths of an inch in length. The female is shining black throughout, while, anteriorly, the elytra of the male are sparsely mottled with whitish.

The eggs are cylindrical with both ends abruptly and regularly convexed, measuring 3.00 to 3.25 mm. in length and 1.50 to 1.75 mm. in width. They are deposited either on cactus or soil where the plant and the earth make contact.

The larvæ enter the plant just below the surface of the soil, arranging their cells so that the excess moisture is absorbed by the ground immediately adjacent. In many instances this wet soil is shaped to form the lower part of the larval cell.

Pupation takes place in the earth just below the scene of the larval activities. The spheroidal cocoon is slightly more than one inch in diameter and is composed largely of earth, but may contain a small amount of the fibers of the plant.

This Opuntia longicorn has two generations annually in the Uvalde, Texas, region. The winter is passed in the larval stage and the spring adults appear in greatest abundance during late April and early May. Second generation adults appear in September. The adults live from two to three months in summer.

Various species of *Opuntia* and *Echinocereus,* called "pitahaya," are the plants in which this species breeds in Southwest Texas. The adults feed preferably upon the young, tender joints or *nopalitos,* but also quite commonly on the fruits and older joints.

During the day the adults secrete themselves about the base of the cactus clump or among the debris which constitutes the massive covering of the pear-rat's [10] abode. With the approach of dusk the first few beetles leave their shelter and crawl upon the plants, where they feed and mate during the night. In the morning, when the sun's rays strike them, they descend to cover. It was, therefore, found that the most effective period of the day for collecting them is between dawn and about 8 a. m.

9 Order Coleoptera, Family Cerambycidæ.
10 *Neotoma micropus* Baird.

Indeed, with little effort one may capture during this brief period more beetles than could be collected by several persons during the day by the laborious method of chopping and moving the heavy Opuntia plants. On cloudy days the beetles remain on the upper portions of the plant until much later in the day.

On account of the semi-subterranean life of the larvæ and the nocturnal habits of the adults, these insects are always a rather obscure factor in the cactus-insect complex, despite the importance of their injury. Two reliable indications will serve to reveal the presence of the insect. First, infested plants are in a disheveled state, much fallen, and the basal portions are in a state of decomposition. This condition results from the larval attack and constitutes the principal injury accomplished by this species. Second, the feeding marks of the adults on the upper portions of the plant show the presence of the beetles in the immediate vicinity, for, being dependent upon crawling as a means of locomotion, they do not travel far. This gnawing of the joints is insignificant in comparison to the larval damage.

The species was collected at many points in the field in the Uvalde, Texas, region. Its habitat is the dry, rolling country of Southwest Texas.

NATURAL ENEMIES

Two parasites of *M. crassum* have come under observation. The first developed from larvæ collected in the La Pryor, Texas, district during December, 1920. During the following spring three puparia of this dipterous parasite were found within one dead larva. This Moneilema larva was destroyed just prior to the pupation of the other individuals. Unfortunately, these parasites were lost during the interval between dismantling the Florida station and the belated establishment of Texas headquarters.

During the autumn of 1922, Mr. E. Mortensen found at Uvalde, Texas, a minute egg-parasite destroying practically all of the eggs deposited by large stocks of caged beetles. This parasite has been described [11] as a new species under the name of *Oencyrtus moneilemæ* Gahan.

11 Proc. Ent. Soc. Wash., Vol. 27, 1925.

NOTES AND NEW SPECIES (LEPID., PHALAENIDÆ)

BY WILLIAM BARNES AND F. H. BENJAMIN

Decatur, Illinois

Rhizagrotis epipsilioides Barnes and Benjamin, sp. nov.*

Head and thorax cream-gray. Palpi similar, marked with black. Fore wing: Ground color cream-gray, dusted with black; basal line and dash obsolete; t. a. line black, diffuse, broad, indicated by powdery black scales, inwardly oblique from costa, ragged, produced to an inward point on median vein, thence strongly excurved to inner margin; orbicular obsolete; reniform a powdery, black, nearly round, mark; t. p. line black, powdery, produced to points on the veins, excurved from costa to vein 4, thence incurved to inner margin; veins marked by black scales; s. t. line diffuse, marked by blackish scales; its course indeterminate other than approximately parallel to the outer margin; a row of terminal black dots between the veins; fringes luteous at base, followed by a fuscous line, then a whitish line, then another fuscous line, and with pale tips. Hind wing: Pale, whitish, the veins and outer margin suffused with fuscous; fringes luteous at base, a fuscous interline, and white tips. Beneath: General coloration much as above, somewhat paler; with an obsolescent blackish common line, on the hind wing marked on the veins only; a diffuse discal blotch on fore wing, and an obsolescent discal dot on hind wing. Expanse, 41 mm.

The roughened, although not tuberculate frons, allies the insect to certain *Rhizagrotis* species, notably *R. polingi* B. and Benj., to which it seems allied by habitus. The rather rough thorax suggests *Epipsilia,* but the vestiture is composed of bi- and trifurcate narrow scales mixed with some hair. The present species, like *polingi,* is another connecting link between the genera of the *"Euxoa"* and *Lycophotia* groups. European workers would probably place it in *Lycophotia* or *"Agrotis,"* but because of the frons we prefer to place it in *Rhizagrotis.* Superficially, the appearance is very similar to smooth-looking *"Agrotis" aurulenta* Sm., but it may be distinguished by its black-sided palpi, more roughened frons, and broader-scaled thoracic vestiture.

Locality: Vineyard, Utah.

Types: Holotype ♀, VI-11-18, unique.

Notes: In Barnes collection, Tom Spalding, collector.

* Indicates that the type was submitted to Dr. William Schaus in order to be sure the species had not been described from the neotropics. Thanks are due Dr. Schaus for his numerous kindnesses.

"Agrotis" scaramangoides Barnes and Benjamin, sp. nov.*

Antennæ of male serrate and fasciculate. Head and collar rufous, brown, luteous and gray, mixed, the collar tipped with purplish. Thorax dull wood-brown. Abdomen similar, paler basally. Fore wing: Ground color pale brownish cream with black and brown powderings; costa narrowly edged with brownish-black, else the costal region of the pale ground color, which is conspicuous only in the filling of the stigmata and edging of the veins which are narrowly marked by black; all transverse maculation obsolete; orbicular narrow, outwardly oblique from radius and obtusely angled in cell, the lower part nearly erect; reniform nearly erect, narrow, only slightly constricted and bent; cell before and between the stigmata black-filled; some black filling distad of the reniform; a black broad streak below cell taking the place of the basal dash and claviform; s. t. line indicated only by a slight darkening between the veins and by the terminal portion of the wing being darker than the general ground color; an obsolescent terminal row of dots between the veins; fringe yellowish at base, interlined with fuscous and tipped with pale luteous. Hind wing: Nearly uniform brownish fuscous, with slightly darker veins, and somewhat paler basally; fringe yellowish at base, obscurely interlined, and tipped with pale luteous. Beneath: Fore wing nearly uniformly dull fuscous; hind wing whitish, with darker veins, and a scattered fuscous suffusion which considerably darkens the wing distally; fringes as on upper side. Expanse, 38 mm.

Unallied to any North American insect known to us. In appearance almost exactly like Warren's figure of *scaramangæ*,[1] but differing by the terminal space being nearly as dark as the s. t. dashes, and in that the black and pale lined veins 3 and 4 run to the outer margin, while the other veins have a similar tendency.

We describe in *"Agrotis"* in the Hampsonian sense, pending a decision on the availability of certain Hubnerian genera now being considered by the Internal Commission.

Locality: Bald Mountain, Ward, Colorado.

Types Holotype ♂, August, unique.

Notes: In Barnes collection, E. J. Oslar, collector.

POLIA FALSA Grt.

(partim ♂ nec ♀)

1880, Grote, Can. Ent., XII, 215, *Perigea.*
1893, Smith, Bull. U. S. N. M., XLIV, 153, *Perigea.*

1 From Turkestan, Mongolia, and Tibet; 1909, Warren, in Seitz, Macrolepid., III, 50, pl. XI, b.

1903, Dyar, Bull. U. S. N. M., LII, 111, No. 1120, *Perigea.*

1906, Hampson, Cat. Lep. Phal. B. M., VI, 388 (♂ nec ♀), *Polia. micta* Hamp.

1918, Hampson, Nov. Zool., XXV, 117, *Miselia.*

In 1906 Hampson recognized a mixed type series of *falsa* Grt. and restricted the name to the ♂ type, renaming the species represented by the ♀ type *Bryomima fallax.* In Nov. Zool., 1918, he attempted to change the name *falsa* back to *Bryomima* (type ♀) and renamed the ♂ type *Miselia micta,* on the grounds that the ♂ type did not fit the original description in regard to its hairy eyes.

We scarcely see how this enters the matter. When Hampson first selected one species to hold the name *falsa* out of a mixed type series, he might well have selected the species best fitting the original description. However, he chose the hairy-eyed species to hold the name *falsa,* and we do not see how this fixation can be discarded even by himself.

We might mention that we find nothing in the code which states that a description must be either adequate or accurate, and call attention to the fact that a number of authors have erroneously described hairy-eyed forms as possessing smooth eyes, and vice versa. In fact, the unique type of Grote's *"Mamestra" ferrealis* is in *Oligia.*[2]

We are retaining *falsa* for the hairy-eyed species and *fallax* for the lashed-eyed species.

Septis ona Sm.

1909, Smith, Jour. N. Y. Ent. Soc., XVII, 58, *Luperina.*

1910, Hampson, Cat. Lep. Phal. B. M., IX, 499, pl. CXLVII, f. 20, *Parastichtis.*

stygia Dyar.

1915, Dyar, Proc. U. S. N. M., XLVII, 377, *Trachea.*

Professor M. Draudt informed us of the probable synonomy and asked that we investigate. Accordingly, a specimen of *ona,* agreeing with the cotypes and series in the Barnes collection, was submitted to Dr. Schaus to compare with type *stygia* in the United States National Museum. Dr. Schaus states our specimen "is a perfect match of *stygia.*"

S. ona Sm., *burgessi* Morr., and *relicina* Morr. are very close allies. The abdomen of each is tufted, so that they seem out

2 See 1923, B. and Benj., Can. Ent., LV, pp. 264-265.

of place in *Luperina*. We suggest *Septis* as a better placement, although we might here mention that we see little to separate *Septis* from *Trachea*.

Luperina enargia Barnes and Benjamin, sp. nov.

Head and thorax luteous, strongly tinged with rufous-purple. Fore wing: Ground color luteous, tinged and irrorated with rufous-purple; ordinary lines except the s. t. of rufous-purple, single; basal line obsolescent; t. a. line in the form of three waves from costa to inner margin; median shade broad, outwardly oblique from costa through cell filling in space between the ill-defined, luteous, blotchy stigmata, angled at base of reniform, thence inwardly oblique; t. p. line outwardly oblique on costa, thence parallel to costa, thence outwardly oblique to a sharp point on vein 6, thence inwardly oblique and produced to points on the veins, which are strongly marked by rufous-purple; s. t. line pale, rather as a waved transverse of ground color bordered by a slight powdering of rufous-purple scales than as a real line; terminal line thin, more or less interrupted by the veins; fringe rufous-purple, obscurely mottled and interlined, paler basally. Hind wing: Black, tinged with rufous-purple, only a slight trace of luteous on disc, fringe rufous-purple, paler basally. Beneath, ground color luteous, strongly suffused with rufous-purple, and powdered by black scales, a common black line across wings, discal black dot on hind wing only; veins, especially of hind wing, darkened. Expanse: ♂, 37 mm.; ♀, 34 mm.

Similar to *Luperina venosa* Sm.; somewhat smaller, smoother appearing; the fore wing, with the fuscous scales and markings, replaced by rufous-purple; the hind wing much darker, black tinged with rufous-purple, and nearly lacking yellowish on upper side.

Type locality: Monachee Meadows, Tulare County, California, 8000 feet.

Number and sexes of type: Holotype ♂ and allotype ♀, July 8-14.

PLATYPERIGEA CAMINA Sm.

1894, Smith, Trans. Am. Ent. Soc., XXI, 60, pl. VI, f. 9, *Platyperigea.*
1903, Dyar, Bull. U. S. N. M., LII, 109, No. 1096, *Platyperigea.*
1909, Hampson, Cat. Lep. Phal. B. M., VIII, 417, pl. CXXXIII, f. 4 (type), ignot., *Petilampa.*

The typical form from Colorado is much like Hampson's figure in markings, but the figure is too large and red. We particularly call attention to the dentate but evenly curved t. p. line and the short dash in the cell which takes the place of the orbicular. Besides a short series from several Colorado locali-

ties, the form is apparently represented in the Barnes collection by single specimens from Montana and Wyoming.

Platyperigea camina race **alpha** Barnes and Benjamin, nov.

A race, or very likely only a maculation form, with markings similar to those of typical *camina,* but with the black dash which takes the place of the orbicular greatly elongated, distally nearly making contact with the reniform and continued mesad to the base of the wing.

Type locality: Deer Creek, Provo Cañon, Utah.

Number and sexes of types: Holotype ♂, 10-IX-18; one ♂ paratype, id., 22-VIII-13.

Notes: Barnes collection, from Tom Spalding.

Platyperigea camina race **beta** Barnes and Benjamin, nov.

In general similar to typical *camina,* but the t. p. line when visible is much more strongly dentate, its course less evenly curved, a tooth produced inwardly nearly to the reniform and another strong inward tooth in the submedian fold, nearly making contact with a strong outward tooth on the t. a. line. T. a. and t. p. lines distally marked with white. In many specimens it is difficult to see the exact course of the lines, but the present form is usually easily sorted on its decidedly strigate appearance. Such differences of appearance and markings have nearly universally been accepted as of specific value. Possibly *beta* is a valid species. However, we prefer to call it a subspecies (race) until there is further evidence of its relationship to other described forms.

It is represented in the Barnes collection from Jemez Springs, New Mexico, and Clark County, Nevada, as well as from the type localities.

Type localities and number and sexes of types: Holotype ♂, Paradise, Arizona, 24-31 July; allotype ♀, id., 1-7 October; 20 ♂, 30 ♀ paratypes, id., various dates, August, September, and October; 1 ♂, 5 ♀ paratypes, Palmerlee, Arizona, no dates.

Notes: Types in Barnes collection; 2 ♂, 2 ♀ paratypes in U. S. N. M.

TWO NEW WESTERN PHALÆNIDÆ

BY WILLIAM BARNES AND F. H. BENJAMIN

Decatur, Illinois

Polia wyatti Barnes and Benjamin, sp. nov.

Head, thorax, and fore wing pale gray, with a few luteous and black scales; basal line faintly geminate, its mesial part deep black, erect on costa, produced along median vein, inwardly oblique to vein 1; a black dash from termination of basal line, in submedian fold, through about one-third of the t. a. space; t. a. line geminate, mesial part obsolescent, distal part black, outwardly oblique, waved from costa to below cell, excurved to base of claviform, strongly dentate inwardly on vein 1, thence strongly excurved to inner margin; orbicular large, rounded, white, filled with gray, and outlined with black scales; two black spots on costa, one each side of the orbicular; claviform large, outlined by black, with pale gray filling, extending to or nearly to the t. p. line; reniform large, irregular, pale, faintly outlined by black with central pale crescent outlined by gray, somewhat constricted in middle, distally making contact with the t. p. line, mesially produced as a point on median vein; t. p. geminate, its outer line obsolescent, inner line marked by black, produced to long points on the veins, oblique on costa, excurved to veins 4 or 5, incurved to claviform, at the distal end of which it forms a small w-mark, outwardly oblique to vein 1, inwardly oblique to inner margin; s. t. line obsolescent, marked by some sagitate black dashes in a course nearly parallel to the outer margin; a terminal row of dots between the veins; fringe pale at base, interlined and checkered by blackish. Hind wing fuscous, with paler, broad, obsolescent median shade; with a thin dark terminal line; fringe luteous with a fuscous interline. Beneath: Fore wing dull gray; hind wing white, with a few scattered fuscous scales. Expanse, 40-44 mm.

A peculiar species, with a rather rough front, but obviously not a *Scotogramma*. The habitus is that of a well-marked, narrow-winged *lustralis*, but structurally nearer to *insolens*. The eyes are strongly lashed from behind, and possibly a few lashes from near the base of the antennæ, suggestive of *Lasionycta*. The fore tibiæ are unarmed, and the tarsi are rather heavily spined, but not heavily enough to prohibit placement in *Polia*, which term we use in the sense of Hampson, knowing that the correct name is probably *Hadena*.

Type locality: Fort Canby, Washington.

Number and sexes of types: Holotype ♀, and 1 ♀ paratype, VIII-7-12, H. Ramstadt collection.

Notes: Received through Mr. A. K. Wyatt of Chicago, Illi-

nois, for whom we take pleasure in naming the species. Mr. Wyatt has kindly allowed us to retain the holotype.

Papaipema dribi Barnes and Benjamin, sp. nov.

Head and thorax purple-rufous; basal antennal segments white; tegulæ white-tipped. Fore wing: Ground color yellow, strongly tinged with rufous and powdered with dull purplish scales; basal spot white or purple-gray; subbasal area concolorous with median area; subbasal line strongly excurved from costa to submedian fold, bent inwardly at base of cell; t. a. area purple-gray above vein 1; t. a. line double, angled inward on subcosta, thence outwardly oblique to median vein, incurved in submedian space, strongly excurved above inner margin; claviform indicated by a minute luteous-white spot defined by purple-gray, below which is another minute spot containing two white scales surrounded by purple-gray; orbicular rounded, white, defined by purple-gray with a rufous distal point; reniform large, oblique, constricted on inner side at middle, with a luteous center defined by rufous and surrounded by white spots defined by purple-gray; medial shade purple-gray, outwardly oblique from costa, inwardly oblique from cell; t. p. line double, excurved to about vein 4, incurved in submedian area; s. t. line irregular, its course not well defined; an apical yellowish patch; terminal line thin, purple-gray; fringe luteous at base, distally purple-gray, interlined with luteous and purple-gray. Hind wing luteous-white, suffused with rufous and purple-gray. Beneath: Luteous-white, tinged with rufous and purple-gray. Expanse, 38 mm.

Allied to *marginidens;* but with somewhat the habitus of *merriccata.* The genitalia, examined superficially, are much like those of *marginidens,* the clasper and ventral arm of the valve appearing shorter and heavier.

Mr. Henry Bird has seen the specimen, which we had already compared with the various Western types in the United States National Museum, and agreed with us that a new species was involved. When asked to describe it he declined, but very kindly advised us to do so.

Type locality: High Rolls, New Mexico.

Number and sexes of types: Holotype ♂, August, J. G. Bonniwell collector.

Notes: The name *birdi* having been used for a *Papaipema,* we take pleasure in using the anogram *dribi.*

NEW SPECIES OF CARABIDÆ IN THE SUBFAMILY HARPALINÆ, CHIEFLY FROM WESTERN NORTH AMERICA

BY EDWIN C. VAN DYKE

University of California, Berkeley, California

(Continued from page 76)

Pterostichus rufofemoralis Van Dyke, new species

Rather robust, somewhat flattened, black, with the base of first antennal segment, coxæ, trochanters and femora, except the apices, an orange-red, the head and prothorax smooth and shining, the elytra subopaque and alutaceous. Head large, considerably over one-half breadth of prothorax and slightly longer than broad; frontal grooves prominent; mandibles robust and of normal length; eyes large; antennæ moderately robust, extending slightly beyond the base of prothorax. Prothorax robust, as broad as long, slightly narrowed posteriorly, apex shallowly but evenly emarginate, base almost transverse, sides distinctly arcuate throughout, hind angles rounded; lateral margins moderate, reflexed and with well-marked flattened fossæ within, which broaden basally; disc convex, median longitudinal groove deeply impressed and almost complete, anterior transverse impression well defined, the posterior vague, basal impressions single, broad and deep posteriorly and coarsely irregularly punctured, a rounded tubercle to the outer side (in the paratype or second specimen this is less evident), the base not margined. Elytra three-fifths longer than head and prothorax combined, five-eighths as broad as long, elliptical; humeri well rounded, humeral angles absent; disc convex, striæ deeply impressed, complete, uniform throughout, finely rather closely punctured, intervals convex, slightly crenulate and vaguely rugose near middle; third with four shallow foveæ, the first about one-fourth distant from base, the second near the middle and the others closer together and not far from the apex; scutellar striæ rather long and on either side of the suture at base. Legs fairly robust; first segment of posterior tarsi obscurely grooved at base on either side; posterior trochanters of moderate size. Apex of prosternum not margined. Beneath, with the sides of head finely rugose, the lateral thoracic sclerites and sides of first two abdominal segments rather coarsely punctured, the median portion of body with the abdomen posteriorly smooth and shining. Length, 13 mm.; breadth, 5 mm.

Holotype, female (No. 1853, Mus. Calif. Acad. Sci.), and paratype female in my collection, captured on Iron Creek, sixty miles north of Nome, Alaska, August 23, 1913, by J. Aug. Kusche and by him kindly presented to me.

This interesting and most distinct species should be associated

with *Pterostichus punctatissimus* Rand. It has the same general facies, and is about the size of a small specimen of the latter. It is in general less robust, its head and prothorax smaller, the elytra more elliptical, the intervals regular, and the thighs a clear orange-red instead of black. The males will, no doubt, be found to have the elytra more shining.

Pterostichus pacificus Van Dyke, new species

Small, robust yet graceful, shining, head and prothorax black, elytra piceous brown, mouthparts, antennæ, legs, prothoracic epipleuræ and epipleuræ rufopiceous. Head rather large, slightly more than three-fifths as broad as prothorax; frontal grooves well impressed, non-punctate; mandibles of type usual in subgenus *Cryobius;* eyes moderately prominent (less convex than in *riparius*); antennæ rather slender, extending beyond hind angles of prothorax. Prothorax slightly broader than long; apex emarginate; anterior angles prominent, base slightly emarginate at middle; sides narrowly arcuate from apex to one-fourth distance from base, there sinuate and straight to hind angles which are right-angled; lateral margin well defined and markedly reflexed; disc convex, median longitudinal groove sharply defined and almost complete, anterior transverse impression vague, the posterior distinctly defined; basal impressions each a single flat-bottomed pit projecting forward along the inner margin, rugosely punctured at bottom, without distinct carina near hind angles, base with indistinct margin near angles. Elytra one-fifth longer than head and prothorax combined, three-fifths as broad as long; humeri distinct though rounded, the sides moderately arcuate and rounded to sutural angles as usual, the margin fine; disc convex, slightly flattened at middle; striæ clearly defined and complete, more deeply impressed basally and apically, punctuation obscure, intervals flattened at middle, somewhat convex near base and apex; third stria with a well-defined fovea one-third distance from base and another one-fourth distance from apex, scutellar stria rather long and well impressed. Legs slender, first three segments of hind tarsi deeply grooved on outer sides. Apex of prosternum not margined. Beneath, with side pieces of meso and metathorax shallowly and sparsely punctured, the first and second abdominal segments also vaguely punctured at sides, elsewhere smooth and shining. Length, 9 mm.; breadth, 3.25 mm.

Holotype, male (No. 1854, Mus. Calif. Acad. Sci.), a unique in my collection, captured by myself near Hoquiam, Washington, May 27, 1914.

This species belongs in the subgenus *Cryobius* Chaud., and is related to *riparius* [8] and its associates *fatuus* and *pinguedineus,*

[8] See my notes concerning these in "The Coleoptera collected by the Katmai Expedition," Nat. Geograph. Soc. Contrib. Tech. Papers, Vol. II, No. 1 (1924), p. 9.

but it differs from these by having the prothorax more elongate, the anterior prothoracic angles more prominent, the sides posteriorly parallel for a considerable distance in front of the hind angles, the outer basal impression merged with the inner in one deep pit, not separate anteriorly as in those, the lateral margin of both prothorax and elytra more distinctly defined, the scutellar striæ longer, the punctures of the striæ almost obliterated, and the antennæ and legs longer and more delicate. The shape of the beetle, especially that of the prothorax and elytra, strongly suggests some of the species of *Bembidium* like *funereum* and *mæklini*.

Anilloferonia Van Dyke, new genus

Body elongate, moderately flattened and parallel. Head moderate in size, somewhat constricted behind; eyes wanting; genæ slightly prominent, two supra-orbital setæ; frontal grooves well developed; frontal suture distinct; clypeus prolonged beyond base of mandibles; mandibles porrect, without setæ in scrobes; antennæ arising under a distinct frontal ridge, well developed, the three basal segments glabrous, outer segments somewhat enlarged; submentum biemarginate and with well-defined tooth at middle; maxillæ with laciniæ hooked at tip, the maxillary palpi of moderate length, the last segment elongate conical, the penultimate about two-thirds length of preceding and obconical; ligula of moderate size and bisetose at tip; labial palpi with the last two segments of about equal length, the penultimate bisetose in front. Prothorax with lateral setæ one-third distant from anterior angles and others within posterior angles. Body not pedunculate. Elytra narrowly inflexed, margin interrupted posteriorly and with evident internal plica, disc without dorsal punctures. Apterous. Prosternum not prolonged at tip and not margined at apex. Mesosternum almost vertical in front and rather widely separating the coxæ, the epimera narrow, yet wider internally. Metasternum well developed, the episterna about a third longer than broad, the epimera almost one-half the width of the former; posterior coxæ contiguous. Legs well developed, femoræ not greatly enlarged, posterior trochanters large and somewhat elliptical in shape; anterior tibiæ deeply emarginate within and with inner spurs at summit of emarginations.

Genotype: *Anilloferonia testacea* Van Dyke, new species.

This genus, according to the characters, should be placed in the tribe Pterostichini as constituted by Horn,[9] and close to the genus *Pterostichus*. It differs primarily from that by its having

[9] "On the Genera of Carabidæ, with special reference to the fauna of Boreal America," by George H. Horn, Trans. Am. Ent. Soc., Vol. IX (1881), p. 136.

no vestige whatever of eyes and by the outer segments of the maxillary palpi being differently proportioned. Superficially, it looks like a diminutive specimen of one of the species close to *angustus* or like a giant *Anillus,* particularly as regards the shape of the head.

Anilloferonia testacea Van Dyke, new species

Testaceous. Head one-third longer than broad, one-third as broad as prothorax, smooth and shining; antennæ extending slightly beyond posterior thoracic angles. Prothorax about as wide as long, apex and base feebly emarginate; sides feebly arcuate for anterior half, straight and slightly convergent posteriorly; hind angles barely obtuse, lateral margin fine; disc slightly convex anteriorly, flattened in region of hind angles; median longitudinal groove distinct, yet fine and almost complete; anterior transverse impression indicated only by series of small black spots; posterior impression vague; basal impressions single, not well defined; basal area obscurely punctate; basal margin only faintly indicated at middle. Elytra almost a third longer than head and prothorax combined, a third longer than broad, elongate elliptical; humeri rounded; lateral margin fine; disc feebly convex, flattened at center; striæ nine in number, fine yet complete, very finely and not closely punctured, the eighth with five well-marked foveæ near humeri and five near apex, the seventh with one fovea near apex, the intervals flat and without punctures; scutellar striæ wanting. Beneath smooth and shining, except side pieces of meso and metathorax and first two abdominal segments which are obscurely punctate-rugose. Length, 5.5 mm.; breadth, 2 mm.

Holotype, female (No. 1855, Mus. Calif. Acad. Sci.), a unique captured by myself in the Yakima Indian Forest Reserve on the east side of Mount Adams, Washington, at an altitude of about 4000 feet, July 1, 1925. It was found beneath an old log in the forest.

This and two species of *Anillus* are the only completely eyeless Carabidæ which have been found on the Pacific Coast.

Evarthrus montanus Van Dyke, new species

Elongate, robust, black, head and prothorax somewhat shining, elytra subopaque, slightly more pronounced in female. Head large, almost four-fifths breadth of prothorax; frontal grooves well marked; eyes prominent; mandibles robust and projecting; antennæ extending a couple of segments beyond hind angles of prothorax. Prothorax about 1 mm. broader than long, apex feebly emarginate, base more distinctly so and about equal in breadth to apex; sides slightly arcuate and convergent posteriorly until near hind angles where

they become gradually sinuate, then straight to the angles which are well defined, slightly obtuse and blunt at apex; lateral margin well defined, rather narrow in front but gradually broader posteriorly; disc convex, with series of fine transverse rugæ near middle; median longitudinal goove linear and well impressed, almost complete posteriorly and ending abruptly anteriorly at transverse impression; anterior transverse impression sharply defined and complete, the posterior not definable; basal impressions double, the inner deep and broad and each with a faint fovea on inner margin, the outer likewise deep but more linear, with a fairly well-defined carina to the outer side of it. Elytra 2 mm. longer than head and prothorax combined, one-sixth broader than prothorax and over two-thirds longer than broad; humeri pronounced though rounded; sides moderately arcuate and distinctly but shallowly sinuate before apex, disc convex though slightly flattened toward base; striæ complete, well impressed anteriorly, less so posteriorly, finely rather closely and distinctly punctured anteriorly, the punctures gradually disappearing toward apex; intervals somewhat flattened, the third with a single fovea back of middle and close to second stria, the seventh distinctly elevated at base; scutellar striæ vaguely defined at base of second interval. Legs moderately robust, hind tarsi without lateral grooves externally. Prosternum deeply grooved and not margined at apex. Beneath moderately smooth and shining. Length, 18 mm.; breadth, 6.5 mm.

Holotype, male (No. 1856), allotype, female (No. 1857, Mus. Calif. Acad. Sci.), and several paratypes in my collection, captured by myself in the valley at the base of the Black Mountains, North Carolina, during July, 1902. I have a series of seventeen specimens. It was not uncommon, and both Mr. William Beutenmueller, my traveling companion, and I took them frequently. The females are often much broader and more robust than the males. A pair of paratypes will be deposited in the United States National Museum at Washington, D. C.

This is a form that is characteristic of the mountains. I have always associated it with *Evarthrus sigillatus* Say, which, though found on both sides of the Alleghanies, is generally more northern in distribution. I believe that it is derived from the same common stock, but it is markedly different in appearance, even when viewed superficially, for it is considerably larger and more elongate, the prothorax especially so. The prothorax is also more flattened basally, the sides distinctly though gradually sinuate posteriorly, the hind angles definitely angulated, and the basal impressions less separated. The elytra are more

elongate, more flattened basally and, as a rule, with the striæ more impressed anteriorly.

Evarthrus vagans alabamæ Van Dyke, new subspecies

This name I am proposing for a very distinct phase of the species which is characterized by being of large size, 17 mm. long by 7 mm. in breadth, resembling in this regard the larger phase generally known as *engelmanni,* and differing from this primarily by having the sides of the prothorax evenly arcuate to hind angles, not at all sinuate posteriorly, the hind angles as a result very obtuse, the lateral margin more broadly expanded posteriorly, the basal impressions more distinctly separated, and the carinæ near the hind angles short and rather poorly defined, not long and conspicuous as in the other.

Holotype, male (No. 1858), allotype, female (No. 1859, Mus. Calif. Acad. Sci.), and five paratypes in my collection, all captured near Mobile, Alabama, by Mr. H. P. Loding. Two other specimens, one from Shreveport, Louisiana, and the other from Hart, Louisiana, agree with these.

Evarthrus lodingi Van Dyke, new species

Large, elongate, robust, black, rather shining throughout. Head two-thirds as broad as prothorax, somewhat elongate; frontal grooves deeply impressed; frontal suture distinct but fine; eyes prominent; mandibles robust, elongated. Prothorax over 1 mm. broader than long, apex feebly emarginate; base slightly narrower than apex, emarginate, narrowly margined close to angles; sides rather broadly arcuate and convergent posteriorly until close to base, where they become abruptly sinuate, then oblique to hind angles, which are well defined though rounded; lateral margin fine, uniform and well reflexed; disc moderately convex, smooth; median longitudinal groove fine, distinctly impressed, extending from apex to near base and with small foveate enlargement near apex and a very large and deep one near base; transverse impressions not defined; basal impressions treble, a deep foveate inner one, a deep, long linear median one, well separated from the first, and an oblique shorter linear outer one joining basally with the second, a well-defined carina at the outer side of the last. Elytra one-fourth longer than head and prothorax combined, over 1 mm. broader than prothorax and five-twelfths longer than broad, subelliptical; humeri prominent but rounded; margin rather broad, sharp and distinctly sinuate near apex; disc moderately convex, striæ complete, very deeply impressed, finer apically, very finely closely punctured, the punctures gradually obliterated toward apex; scutellar stria long, deeply impressed and within base of first interval; intervals convex, the third with fovea

about one-third distant from apex, the seventh conspicuously elevated at base. Legs long yet robust, hind trochanters broad, flattened, and subacute at apex; hind tarsi without lateral grooves externally. Prosternum shallowly grooved and not margined at apex. Beneath smooth and shining. Length, 20 mm.; breadth, 7.5 mm.

Holotype, male (No. 1860, Mus. Calif. Acad. Sci.), in my collection, captured at Monte Sano, Madison County, Alabama, June 9-11, 1911, by Mr. H. P. Loding and by him very kindly presented to me. Other specimens are in Mr. Loding's collection. The species is named after the captor, a kind and generous friend who has done many favors for me and has contributed much toward making known the Coleopterous fauna of his region.

This very distinct and elegant species should, perhaps, be placed somewhere near *sodalis*. It is much like a giant phase of the latter, with the hind angles of the prothorax of about the same size but more rounded. Its size, graceful form, three series of distinct basal thoracic impressions, long deep scutellar striæ, deeply impressed striæ and convex intervals should set it well apart from all known species. According to the Leng catalogue and the works of Colonel Casey [10] this species would fall in the genus *Eumolops* Casey, but that genus is not founded upon any character of good generic value, therefore I feel that it should not be recognized.

Platynus prognathus Van Dyke, new species

Elongate, subparallel, flattened, nigropiceous, margins of prothorax, elytra, basal segments of antennæ, mouthparts, legs, and sides of abdomen testaceous. Head much elongated, with mandibles longer than prothorax and almost as broad; frontal impressions large, irregularly and shallowly impressed; clypeus bifoveate in front; eyes large and moderately convex; mandibles very long and sickle-shaped, as long as rest of head; antennæ long, terminal segments enlarged, the last three extending beyond base of prothorax. Prothorax one-fifth broader than long; apex feebly emarginate; base transverse and equal in breadth to apex, vaguely margined, sides arcuate for anterior half, straight and oblique posteriorly, the hind angles very obtuse and rounded and in advance of the basal margin; lateral margin of moderate width, slightly reflexed and with broad, shallow fossæ within posteriorly; disc slightly convex; median longitudinal groove distinctly impressed, the anterior transverse impression short but

10 "Memoirs on the Coleoptera," by Thomas L. Casey, Vol. VIII (1918), p. 351.

deep, the posterior vague, the surface finely transversely rugose. Elytra over a third longer than head and prothorax combined, one-third broader than prothorax, over twice as long as broad, elongate elliptical; humeri well rounded; sides almost parallel, deeply sinuate posteriorly, the margin fine; disc quite flattened, striæ complete, deeply impressed, punctures very fine and obscure, intervals flattened, the second, fifth, and seventh somewhat broader; the narrower subconvex third with three punctures near the second stria, the anterior about at middle; scutellar stria rather long and well impressed. Legs of moderate length. Beneath rather smooth and shining.

Holotype, female (No. 1861, Mus. Calif. Acad. Sci.), in my collection, captured on St. Simon Island, Okefinokee Swamp, Georgia, April 27 to May 12, 1911, by Professor J. C. Bradley, and by him very kindly presented to me.

This anomalous species might be placed in the group with *cincticollis,* but is widely separated from that, as well as from all of our other species. Its elongate, parallel form, very long mandibles and somewhat clubbed antennæ give it an appearance all its own. Though this species would be classed as an *Anchomenus,* I consider that as but a subgenus at most of *Platynus,* in this regard following such able students of the Carabidæ as Ganglbauer [11] and Le Conte and Horn.

Colpodes rufiventris Van Dyke, new species

Moderately elongate, head and prothorax decidedly narrowed, flattened, nigropiceous, elytra somewhat darker, antennæ, mouthparts, legs, undersurface, and margins of elytra rufous with a slight piceous tinge; head and prothorax shining, elytra subopaque. Head about 1 mm. less in breadth than prothorax and about three-fifths as broad as long; frontal grooves fine; front flattened at outer side of grooves; eyes of but moderate size; mandibles long and prominent; antennæ long and delicate, extending almost to middle of elytra; submentum with simple tooth. Prothorax slightly broader than long, about one-half the breadth of elytra; apex slightly emarginate; frontal angles not prominent; base feebly arcuate, vaguely margined; sides evenly but shallowly arcuate from apex to base, the hind angles broadly rounded, the margin narrow, broader posteriorly and slightly reflexed; disc convex, with vague but fine transverse rugæ; longitudinal groove finely but distinctly impressed; anterior transverse impression well, though not sharply, impressed, the basal a shallow sulcus. Elytra a third longer than head and prothorax combined, a third longer than broad, elongate ovate, broadest back of middle; base deeply emarginate, the humeri as a result prominent, subangu-

11 "Die Kafer von Mitteleuropa," by Ludwig Ganglbauer, Vol. I, p. 248.

late; lateral margin narrow in front, broader posteriorly; apices rounded; disc slightly convex, striæ finely impressed, without distinct punctures; scutellar stria very long; intervals flat, the third with an anterior very vague puncture near third stria, a vague puncture near second stria at middle and an evident puncture near second stria not far from apex. Legs rather long and delicate; anterior tibiæ shallowly grooved on outer face, middle and posterior deeply grooved on both outer and inner face posteriorly, with carinæ between; first and second segments of front tarsi shallowly grooved on both sides above; first three segments of middle and hind tarsi rather deeply grooved on both sides above; fourth segment of all tarsi narrowly bilobed posteriorly, with a slight tuft of pubescence beneath. Beneath rather smooth and shining. Length, 10.5 mm.; breadth, 4 mm.

Holotype, male (No. 1862, Mus. Calif. Acad. Sci.), in my collection, captured at an altitude of 6000 feet on Mount Washington, near Nogales, Arizona, July 10, 1919, by Mr. J. Aug. Kusche, and by him kindly presented to me.

This, the second species of *Colpodes* to be described from our fauna, differs from *Colpodes longiceps* Schfr., also from Arizona, markedly in color as in other features. It does not agree either with the descriptions of any of the known Mexican species. Except for the rather wide margin of the prothorax, this species might fall in the genus *Glyptolenus* Bates, because of the tibial and tarsal characters, but these are quite variable within the genus *Colpodes,* therefore not reliable for establishing a group of more than subgeneric rank at most. The genus *Colpodes* is sometimes placed as but a subgenus of *Platynus,* but I think that though the character used for its separation, the deeply emarginate or bilobed fourth tarsal segment, is not a very marked one; it is sufficiently definite, especially when taken in connection with other characters and backed by the fact that the genus as a whole is more or less arboreal and generally restricted to the warmer parts of the world, whereas almost all of *Platynus* are strictly terrestrial and confined to the temperate regions.

Pseudaptinus oviceps Van Dyke, new species

Elongate, depressed, pubescent, rufotestaceous, antennæ, palpi, and legs testaceous. Head elongate oval, one-fourth longer than broad and three-fourths as broad as prothorax; finely sparsely punctate, rather shining; frontal impressions well marked, rather broad; eyes small, but slightly convex and hardly projecting beyond the even

curve of the side of the head; mandibles prominent, prognathous; antennæ long and slender, extending several segments beyond the base of the prothorax. Prothorax a little longer than wide, broadest near apex; apex very shallowly emarginate; base slightly arcuate, about one-half breadth of widest portion; sides broadly rounded near anterior angles, oblique and convergent to posterior third, then subparallel to hind angles which are right-angled but not prominent; disc moderately convex, somewhat coarsely and sparsely punctured; median longitudinal groove distinctly impressed; anterior transverse impression well defined, posterior vague; basal impressions long and shallow. Elytra oblong elongate, humeri broadly rounded, apex truncate, outer angles rounded, disc flattened; striæ finely impressed, complete; intervals flat, finely and densely punctured, somewhat rugose toward base. Legs long and delicate. Prosternum sparsely and coarsely punctured, smooth at sides, meso and metapleuræ coarsely closely punctured, the abdomen very finely punctured. Length, 6 mm.; breadth, 2 mm.

Holotype, female (No. 1863, Mus. Calif. Acad. Sci.), in my collection, captured by myself about 1889, under a stone near the Los Angeles River, California, in what is now Griffith Park.

This species in size and general appearance looks very much like *Pseudaptinus tenuicollis* (Lec.), but its ovate and narrower head, small eyes, and prominent mandibles separate it very decidedly from that as well as from *Pseudaptinus lecontei* (Dej.).

Thalpius microcephalus Van Dyke, new species

Elongate, depressed, pubescent, rufotestaceous, antennæ, palpi, and legs testaceous. Head elongate, one-fourth longer than broad and narrower than prothorax, moderately coarsely, sparsely punctured, somewhat shining; frontal impressions shallow, poorly defined; eyes rather small, not projecting laterally beyond sides of head; mandibles of usual size; antennæ of moderate length, extending somewhat beyond base of prothorax, segments four to ten oblong. Prothorax about as long as wide, broadest one-third distance from apex; apex slightly emarginate, anterior angles projecting forward somewhat (much more evident than in *horni*); base pedunculate as usual; sides shallowly arcuate anteriorly, oblique and sinuate posteriorly, hind angles acute; disc slightly convex, flattened medially, coarsely, moderately closely punctured; median longitudinal groove sharply impressed; anterior transverse impression well defined, posterior vaguely marked; basal impressions of moderate length, shallow. Elytra oblong, elongate; humeri broadly rounded; apex truncate, outer angles rounded; disc flattened; striæ shallowly impressed, not distinctly defined, especially posteriorly; intervals flat, rather coarsely and irregularly punctured. Legs moderately long. Body beneath coarsely,

rather regularly punctured anteriorly, abdomen more finely punctured. Length 4.75 mm.; breadth, 1.75 mm.

Holotype, a unique female (No. 1864, Mus. Calif. Acad. Sci.), in my collection, secured by myself from beneath a stone on the hills in Griffith Park, Los Angeles, California, January 12, 1912.

This species has the same general body proportions as *Thalpius horni* Chd., but it is much smaller. Its narrow head, less prominent eyes and poorly defined elytral striæ also serve to distinguish it from that as from all other species. In color, it resembles *rufulus,* but it is smaller and has a narrower prothorax in addition to the characters just mentioned.

In this connection I wish to state that in Southeastern California specimens of *Thalpius horni* Chd., which are entirely rufous, are not uncommon.

Harpalus washingtoniensis Van Dyke, new species

Robust, black or slightly brownish. Elytra piceous brown, antennæ, mouthparts and legs piceotestaceous, tarsi darker, very shining, elytra of females duller. Head large, over two-thirds breadth of prothorax, smooth and shining; frontal suture deeply impressed; eyes moderately prominent; mandibles well developed; antennæ reaching to hind angles of prothorax. Prothorax almost a third broader than long; apex and base slightly emarginate, the latter as broad as apex and distinctly and completely margined; sides moderately and evenly arcuate from anterior angles to posterior fourth, then sinuate and convergent to hind angles, which are obtuse, almost right-angled, and sharp at apex; lateral margin fine; disc convex, median longitudinal groove distinctly impressed; anterior transverse impression distinct, posterior vague, basal impressions deep; surface smooth and shining, basal area irregularly punctured, more definitely so in and about basal impressions. Elytra over one-fifth longer than head and prothorax combined, two-fifths longer than broad; humeri rounded; sides slightly arcuate, markedly excised near apex, margin fine; disc decidedly convex, striæ well impressed; scutellar stria rather long; intervals flattened, somewhat convex basally in males. Legs robust. Beneath finely, sparsely and rather indistinctly punctured in front, the abdomen smooth and shining, except for sides of first and base of second segment which are slightly punctured. Length, 8.5 mm.; breadth, 3.25 mm.

Holotype, male (No. 1865), allotype, female (No. 1866, Mus. Calif. Acad. Sci.), and numerous paratypes in my collection, captured by myself at Port Angeles, Washington, May 26, 1907. In my series of thirty-two mounted specimens, I have

them from the following additional localities: Nanaimo, British Columbia; Monroe, Lake Quiniault, Seattle, The Forks, Northbend, and Orcus Island, Washington; and Marshfield, Oregon. A pair of paratypes will be deposited in the entomological collection of the U. S. National Museum, Washington, D. C.

This species varies considerably in size, ranging in length from 7 to 10 mm., the females are, as a rule, larger than the males, and somewhat paler in color, the epipleuræ often lighter, while in a few cases the legs are quite piceous. It belongs in association with *Harpalus spadiceus* Dej. and *Harpalus carolinæ* Schaeffer, differing primarily from the former by having the prothorax more sinuate posteriorly and the hind angles almost right and sharply defined, and from the latter by having the legs yellowish or testaceous, the general body color, especially the elytra, more brownish, the basal impressions of the prothorax more broadly impressed, the basal area itself definitely punctate, the elytral margin more acutely excised posteriorly, and by being as a whole somewhat smaller and less elongate.

Harpalus martini Van Dyke, new species

Robust, elongate, subparallel, black, antennæ, tibiæ, and tarsi somewhat piceotestaceous, very shining above in the male, the female quite opaque. Head large, two-thirds breadth of prothorax; frontal suture very fine, not impressed; eyes moderately prominent; mandibles well developed; antennæ reaching to hind angles of prothorax. Prothorax over a third broader than long; apex distinctly emarginate, the anterior angles slightly prominent; base also distinctly emarginate, completely margined and broader than apex; sides very shallowly arcuate, almost subparallel from anterior angles to posterior fourth, thence sinuate and divergent to posterior angles, which are almost right-angled and slightly rounded at apex; lateral margin fine; disc convex, median longitudinal groove very fine, anterior and posterior transverse impressions both vague, basal impressions broadly and shallowly impressed; posterior angles much flattened; basal area irregularly punctured, especially about basal impressions. Elytra one-fifth longer than head and prothorax combined and one-fifth longer than broad; humeral angles distinctly dentate; sides slightly arcuate, almost parallel, shallowly excised near apex, margin fine; disc convex, striæ finely impressed; scutellar stria rather long; intervals flat. Legs robust. Under surface subopaque anteriorly; abdomen posteriorly smooth and shining in male, subopaque in female; an oblique area on second and third abdominal segments, immediately beneath hind femora, finely punctate and with short hairs arising from each puncture. Length, 10 mm.; breadth, 3.75 mm.

Holotype, male (No. 1867), and allotype, female (No. 1868, Mus. Calif. Acad. Sci.), collected at Bear Lake, San Bernardino Mountains, California, May 5, 1919, by Mr. J. O. Martin, and kindly presented to me. Four paratypes are in Mr. Martin's collection. This species is named after Mr. Martin, an excellent collector, in consideration of many favors.

The species is probably related to *Harpalus somnulentus* Dej., but is decidedly darker. Its color and general shape also suggest *Harpalus cautus* Dej. Its peculiarly shaped prothorax, with base broader than apex, sides subparallel, sinuate and divergent posteriorly, and the well-marked humeral dentations of the elytra should, however, readily serve to separate it from the above and from all of our other species.

Dicheirus blaisdelli Van Dyke, new species

Robust, very convex; head and prothorax rufo-piceous, elytra black, legs rufous; clothed above with long erect hair, the sternal and midventral region as well as the legs also very pilose, the hair in the main shorter than above. Head very coarsely, moderately densely and closely punctured, antennæ about reaching hind angles of prothorax. Prothorax distinctly broader than long, 3.5 mm. by 3 mm., emarginate at apex, transverse at base, the latter 2.5 mm. wide, sides broadly rounded in front, straight and convergent posteriorly, just perceptibly sinuate in front of hind angles, the hind angles obtuse and distinct, not rounded, the disc convex, coarsely deeply and rather sparsely punctured. Elytra over one-third longer than broad, .5 mm. broader than prothorax, sides hardly arcuate, evenly rounded at apex, posterior sinuation faint; disc very convex, striæ distinctly impressed, impunctate, intervals flat and shining, sparsely irregularly biseriately punctured, deeper toward base, very finely near apex. Prosternum coarsely moderately closely punctured, propleuræ finely sparsely and rather indistinctly punctured, the meso- and meta-pleuræ more distinctly punctured and somewhat rugose, the abdomen finely and closely punctured at middle in front, very finely and sparsely at middle behind, with sides impunctate. Legs robust, spines of anterior tibiæ trifid, of posterior slender and acute. Length, 11 mm.; breadth, 4 mm.

Holotype female (No. 1869, Mus. Calif. Acad. Sci.), and three paratype females in the collection of Dr. F. E. Blaisdell, captured by Dr. Blaisdell at Poway, San Diego County, California.

This robust species in both structure and appearance stands midway between *Dicheirus strenuus* (Horn) and *Dicheirus angularis* Casey. It is separated from the former by being smaller

and by having the propleuræ somewhat punctured and from the latter by being far more convex and robust, as well as by having the hind angles of the prothorax more obtuse. From *dilatatus,* it can always be separated not only by its robustness, but by having non-rounded hind angles to prothorax and by having longer pile. The elytra of *blaisdelli* simulate very closely those of a female *Plastocerus agassizi* Lec. The genus *Dicheirus* Mann. is one of the few which might, with benefit, be kept separate from the genus *Anisodactylus* Dej.

Habits of Trachykele nimbosa Fall

While on Mt. Hood, Oregon, during the latter part of June, I noticed that the rare buprestid, *Trachykele nimbosa* Fall, could often be found ovipositing in the blazes made by the surveyors in fir trees, *Abies,* along the right-of-way for a forest road. These beetles are rather silent in flight, as is the case with the *Acmæodera,* and as a result they alight without attracting much attention. Unfortunately, they also depart with as great ease, simply vanish before you. This is particularly the case during the heat of the day. If the weather becomes cooler while they are in evidence, they may readily be approached and even picked up with the fingers.

Trachykele opulenta Fall, a brilliant green species, which breeds normally in the native cypress, *Cupressus sargenti* Jepson, on Cypress Ridge, Marin County, California, has been found this last year to have come down into the valleys and attacked the planted Monterey cypress, *Cupressus macrocarpa* Hartw. As pointed out by Dr. H. E. Burke, this species only attacks the dead limbs of living trees, the larvæ gradually working into the main trunk of the tree which they in time honeycomb.—E. C. Van Dyke.

Habits of Cymatodera decipiens Fall

During the summer of 1925, several *Cymatodera dicipiens* Fall emerged from twigs of *Pinus ponderosa* collected during the winter of 1923 on Mt. Wilson, Los Angeles County, California. During the spring and summer of 1924 and 1925, the only other insects to emerge from these twigs were an undescribed species of *Carphoborus* which came out in some numbers. It seems from this that the latter insect, in the larval stage, is preyed upon by the Cymatodera larvæ.—Alonzo C. Davis.

A LIST OF THE COLEOPTERA TAKEN IN ALASKA AND ADJACENT PARTS OF THE YUKON TERRITORY IN THE SUMMER OF 1924

BY H. C. FALL

Tyngsboro, Massachusetts

It was the writer's privilege to be one of a party of three to make a trip to this wonderland of the North during the summer of 1924. While the excursion was primarily one of sight-seeing and general recreation, the writer, from long habit, kept always an eye open for possible coleopterous windfalls, and as opportunity offered, a few minutes, a few hours, or even the better portion of a day in places where a long enough stop permitted, were devoted to special search for beetles. The results in the aggregate seem worthy of record, in view of the general interest taken in collections from this somewhat remote region.

In 1857 Le Conte remarked that at the close of the activities of the Russian entomologists, the fauna of the region explored by them was more completely developed than that of any other part of the continent. This, of course, is no longer true, even if we confine ourselves to the coast region in which most of the early collecting was done; while if the entire territory of Alaska be considered, it would perhaps be nearer the truth to say that its fauna is less completely known than that of any other equal area of our country.

The total number of species of Coleoptera listed from Russian America at the time of Mannerheim's last supplement in 1853 was 540. Hamilton's Alaskan list with supplement in 1894 enumerates 578 species, and the few scattering additions since that time can hardly bring the total much, if any, above 600 species. It is quite probable that there are now in collections, notably that of the National Museum, a considerable number of additional species, but these, even if worked up, have not yet been recorded.

On the present trip, as nearly as can now be determined, 448 species were taken within, or adjacent to, the Alaskan boundary, of which 117, exclusive of unidentified Stenus and Aleocharini, appear to be new to the Alaskan list. Of these, 61 occurred in the coast region and 64 in the Yukon Valley,

8 species being common to both regions. The fact that nearly half of these 117 species are from the well-explored coast region is rather surprising, since it was to be expected that the great majority of future additions to the Alaskan fauna would be from the interior valleys and mountains, which, entomologically speaking, are relatively unworked. The disparity in this case would indeed have been much greater if the numerous species taken at Dawson, Y. T., where considerable collecting was done, had been included, for it is practically certain that a very large proportion of the species occurring at this point must also occur across the international boundary only fifty miles distant, where the topographical and climatic conditions along the Yukon are virtually the same.

In the interest of economy of space, I shall not attempt here to speak of collecting conditions and experiences, or, except for the table of dates below, to give the itinerary of the trip, further than to say that we left Tyngsboro, Massachusetts, on June 5, via Montreal and the Canadian Pacific, arriving at Skagway June 18, after making the incomparable trip up the "Inside Passage" from Vancouver. On August 2 we boarded the steamer at Ketchikan for Prince Rupert, the return journey across the continent being made thence via the Canadian National Railway to Montreal, arriving at Tyngsboro August 10.

The principal dates on which collecting was done are given once for all in the subjoined table:

Wrangel, Alaska, June 17.
Skagway, Alaska, June 18-20.
Skagway, Alaska, July 27.
White Horse, Y. T., June 21-22.
Dawson, Y. T., June 24-30.
Eagle, Alaska, July 1.
Fort Yukon, Alaska, July 2.
Nenana, Alaska, July 6.
Fairbanks, Alaska, July 7.
Mount McKinley Park, July 8-9.
Anchorage, Alaska, July 10-14.
Seward, Alaska, July 16-20.
San Juan, Evans Island, July 20.
Childs Glacier, Alaska, July 22.
Port Althorp, Alaska, July 23.
Juneau, Alaska, July 25-26.
Sitka, Alaska, July 28.
Scow Bay, Alaska, July 30.
Kasaan, Alaska, July 31.
Ketchikan, Alaska, August 1.

Throughout the 1400-mile trip down the Yukon and up the Tanana Rivers daily stops were made for fuel at wood-piles

along the banks, at which nearly always some beetles were taken.

Species new to the Alaskan list are marked with an asterisk (*).

List of Species

FAMILY CICINDELIDÆ

Cicindela longilabris Say. White Horse, Y. T. Several seen, but having no suitable net no effort was made to secure specimens. No tiger beetles whatever were observed in Alaskan territory.

FAMILY CARABIDÆ

Trachypachus inermis Mots. Skagway; White Horse.

Cychrus (Pemphus) angusticollis Mann. Seward, Sitka.

Cychrus (Brennus) marginatus Fisch. Juneau; Skagway; Kasaan; Ketchikan. Common everywhere near the coast; individuals from the last two localities are considerably larger than those from farther north.

Carabus tædatus Fab. Skagway.

Elaphrus riparius L. Skagway; McKinley Park; Fort Yukon, June 27 (Kusche).

Elaphrus pallipes Horn. Skagway; Dawson. All typical in coloration.

Loricera 10-punctata Esch. Scow Bay. A single example.

**Opisthius richardsoni* Kby. Skagway; Dawson; Fort Yukon, June 27 (Kusche). Frequent along the river at Skagway, varying greatly in color, coppery, green, or nearly black. There are specimens of this species in my collection from Dolomi, Alaska, collector unknown to me.

Notiophilus borealis Harris. McKinley Park.

**Notiophilus simulator* Fall. Anchorage. A single example; also taken by me at Jasper Park, Alberta, on the return trip.

Nebria metallica Fisch. Skagway; Seward; Child's Glacier; Sitka; Juneau.

Nebria sahlbergi Fisch. Seward; Juneau. Two forms referable to this species were taken on the trip; one of narrow thorax and somewhat more elongate form at Juneau and Seward is probably the true *sahlbergi*. Of this a variety with violaceous elytra (probably *violaceus* Mots.) and an-

other with pale legs occurred. The other form is represented by a single example taken at Goldstream, Vancouver Island; it is a little stouter with broader thorax, agreeing closely with specimens in my collection from Washington State and the Rocky Mountains of New Mexico. This form, in its broader thorax, approaches *mœsta* Lec., which, I think, can hardly be a varietal form of *sahlbergi,* although so recorded in the books.

Nebria bifaria Mann. A single typical specimen with bicolored legs was taken at McKinley Park.

Nebria gebleri Dej. Juneau.

Nebria viridis Horn. Dawson; Yukon River (Sheep Creek below Eagle); Tanana River.

Nebria hudsonica Lec. White Horse. Two examples.

Nebria testaceipes Cys. Dawson. One example.

***Dyschirius secretus** Fall, n. sp.

Slightly smaller than, but of the general form and aspect of, *integer* Lec., near which it must be placed.

Body black, bronzed; legs and antennæ black. Head four-fifths as wide as the prothorax; front feebly transversely impressed; epistoma broadly and deeply emarginate. Prothorax subglobose, slightly wider than long, sides broadly, evenly arcuate. Elytra oblong-oval, three-fifths longer than wide; striæ entire, rather deeply impressed and strongly punctured before the middle, becoming much finer and more finely punctured on the declivity; eighth stria finely impressed, distinctly punctate throughout; base not margined; third interspace tripunctate, a single apical setigerous puncture. Basal joint of hind tarsi twice as long as wide and evidently shorter than the two following combined. Length, 2.5 to 2.75 mm.; width, .8 to .85 mm.

Anchorage, Alaska, seven examples, all taken in damp moss on low ground, July 13-14, 1924.

In *integer,* with which the present species is compared, the size is slightly larger, the legs and antennæ are never really black, but rather dark rufous to rufopiceous, the basal joint of the hind tarsus is more elongate, at least three times as long as wide and fully as long as the two following; apex of elytra with two setigerous punctures. There is a strong probability that *integer* is distinct from the European *æneus* with which it has been united, judging from two examples of the latter sent me by Mr. Edmund Reitter. In *nigriceps,* with which the present species might also be compared, the size is larger, the

elytra more finely striate and punctate, the eighth stria obsolete, and the elytral apex apparently with two setigerous punctures; the basal joint of the hind tarsus is also more elongate, as in *integer*.

Only two species of Dyschirius have hitherto been recorded from Alaska, viz., the *frigidus* and *transmarinus* of Mannerheim. The former was described from the Kenai Peninsula, and my Anchorage species might well be expected to be the same. I find, however, that my specimens do not fit the description very well, the size of *frigidus* (3.5 mm.) being materially larger, while the elytra are said to be scarcely wider than the thorax and the elytral striæ evanescent shortly behind the middle. If *frigidus* really equals *æneus*, as it stands in our lists, it certainly is different from the Anchorage species. *Transmarinus* was described from a single example from Sitka; it is even larger than *frigidus*.

Asaphidion yukonense Wickh. White Horse; Dawson.
Bembidion simplex Haywd. McKinley Park.
Bembidion planiusculum Mann. Sitka.
Bembidion complanulum Mann. Dawson; McKinley Park; Seward; Sitka; Kasaan.
Bembidion funereum Lec. Skagway; Dawson.
Bembidion mæklini Haywd.? Sitka.
Bembidion quadrifoveolatum Mann. Kasaan.

Bembidion yukonum Fall, n. sp.

Form and size about as in *grapi*, but rather larger and a little stouter. Black, distinctly green-bronzed, antennæ at base and legs rufous; surface above strongly shining throughout, without alutaceous sculpture except very feebly at elytral apex. Antennæ scarcely attaining the middle of the length, intermediate joints about two and a half times as long as wide. Head a little wider than the thoracic apex; eyes moderate. Prothorax subcordiform, one-fifth wider than long, base slightly narrower than apex; sides strongly evenly rounded from apex to basal constriction, which is parallel-sided for a distance about equal to one-fifth the basal width; base angles sharply rectangular, evidently but not very strongly carinate; basal impressions deep, with a few rather coarse punctures. Elytra one-half wider and three times as long as the thorax, one-half longer than wide; sides broadly arcuate, humeri well marked, not angulate; striæ feebly impressed near the suture; strial punctures moderate, becoming finer posteriorly, very fine but traceable near the apex; those of seventh stria very fine in apical half; intervals flat, the third with two setiger-

ous punctures adjacent to the third stria at approximately the basal and apical thirds. Length, 4.75 mm.; width, 1.9 mm.

Described from a single male specimen taken by the writer at Dawson, Yukon Territory, June 30, 1924.

This species belongs to the *ustulatum* group, and is apparently nearest *insopitum* Csy. The latter is unknown to me, but according to description is a considerably larger species with more transverse thorax, deeply striate elytra, the seventh stria less distinctly punctured basally. *Grapi* is a rather smaller and narrower species, with much finer elytral sculpture, the legs typically black, though in two Greenland examples in the Le Conte collection and in many North American examples so referred, they are more or less distinctly rufous.

Bembidion bimaculatum Kby. Skagway; Dawson; Nenana. There occurred at Nenana, together with the typical form, what I take to be a variety of this species with smaller thorax, browner elytra with or without apical spot, and finer striæ.

***Bembidion mckinleyi** Fall, n. sp.

Black, above with feeble deep-green surface luster, beneath black, femora piceous; trochanters, tibiæ, and tarsi reddish-brown. Upper surface polished throughout, with faint traces of alutaceous sculpture only at elytral apex. Antennæ black, basal joint rufescent, about half as long as the body, slender, intermediate joints not quite three times as long as wide. Head three-fourths as wide as thorax, eyes not at all prominent. Prothorax nearly one-third wider than long, sides rounded anteriorly, sinuate posteriorly, becoming nearly parallel in basal fifth or sixth; hind angles rectangular, side margins very finely reflexed; disc convex, median line well impressed and nearly entire; foveæ only moderately deep, flat or slightly tumid at bottom, with a few obsolete punctures, hind angles not distinctly carinate. Elytra fully three and one-half times as long and three-fourths wider than thorax, three-fifths longer than wide, humeri rather wide, narrowly rounded, sides diverging slightly and nearly straight in basal two-fifths, greatest width at or very slightly behind the middle; striæ finely impressed, moderately strongly and closely punctured basally, more feebly so posteriorly, nearly disappearing at apex; seventh stria represented by a few fine punctures near the base. Length, 5.5 mm.; width, 2.25 mm.

Described from a single pair taken in McKinley Park, Alaska, July 8-12, 1924, by my fellow-traveler, Mr. C. A. Richmond.

This species belongs to the *ustulatum* group, and by its narrow thorax is somewhat remindful of *scopulinum*. It is, how-

ever, much larger and without maculation. Careful measurement shows that the prothorax is not quite as wide at apex as at base. On this basis it would, by Hayward's table, be associated with *nevadense* and *consanguineum,* to neither of which is it at all similar. By Casey's table it would fall near *humboldtense,* which is even more remotely related. If the thorax were regarded as narrower at base than at apex (this relation is at best a rather elusive one) it would fall between *scopulinum* and *canadense* in Hayward's table, which is perhaps the most satisfactory position for it.

Bembidion rupicola Kby. (*lucidum* Lec.). Skagway; Yukon and Tanana Rivers. *Rupicola* has long stood on our lists as a synonym of *ustulatum,* but wrongly so. The synonomy here announced is made certain by an examination of one of Kirby's cotypes kindly sent me by Mr. Arrow.

Bembidion scopulinum Kby. Anchorage; Dawson.

Bembidion picipes Kby. (*grapi* Auct.). Skagway; Dawson; Yukon River (Sheep Creek, below Eagle); Tanana River; McKinley Park. This is the species we are accustomed to call *grapi,* and probably correctly so, although I have not been able to compare with European specimens. Except for darker legs, a Sheep Creek specimen is almost an exact counterpart of one of the cotypes of Kirby's *picipes,* which I have had the privilege of examining. There can be no doubt that the other examples taken are the same thing, and that the species long standing as *picipes* on our lists, following Le Conte's misinterpretation, must henceforth be known as *plagiatum* Zimm.

Bembidion dentellum Thumb. (*incrematum* Lec., *arcuatum* Lec.). Dawson.

**Bembidion coloradense* Haywd. Anchorage.

Bembidion nigripes Kby. Skagway; Dawson.

Bembidion intermedium Kby. I did not take this species, but there are examples in my cabinet collected by Kusche at Fort Yukon, June 27, 1916. This is the true *intermedium* of Kirby, which seems never to have been correctly interpreted by our systematists. It is very closely allied to *nigripes* (perhaps not distinct), and is similarly brightly variegated with yellow. The much less ornate *intermedium*

of the Hayward monograph is an entirely different thing, for which Le Conte's name *rapidum* must be restored, unless on investigation some still older name comes to light.

Bembidion convexulum Haywd. Dawson. Two examples.

Bembidion atrolucens Csy. White Horse.

Bembidion versicolor Lec. Wrangel.

Bembidion dubitans Lec. Dawson.

Bembidion mutatum G. & H. Dawson.

**Bembidion sulcatum* Lec. Anchorage. A single example.

***Bembidion concurrens** Fall, n. sp.

Body oblong, suboval, rather strongly convex; black, polished throughout, elytra with a small nubilous external pale spot at apical fourth, the apex barely visibly pallescent. Antennæ black, basal joint rufescent; median joints twice as long as wide. Head only slightly narrower than thorax; eyes rather large and prominent. Prothorax one-half wider than long, apex evidently wider than base, sides broadly arcuate in front, posteriorly sinuate and subparallel in about the basal sixth, the angles sharp and just visibly more than right; basal foveæ deep, not evidently punctured, bordered externally by a fine acute carina. Elytra not quite one-half longer than wide, five-eighths wider than thorax, parallel, sides feebly arcuate in basal half; striæ finely impressed internally, scarcely at all so in outer half; strial punctures moderate, becoming much finer but still quite distinct on the declivity and laterally in apical half. Legs very nearly black. Length, 3.25 mm.; width, 1.35 mm.

Alaska. Scow Bay (north of Wrangel) two males; Skagway, one female. The type is a male from Scow Bay.

This species belongs to the *assimile* group and in form most nearly resembles *anguliferum*, though materially smaller and with elytra much less finely punctate-striate. The species of this group form a difficult study, and are considerably more numerous than indicated by Hayward's very conservative treatment. The present species by a rigorous interpretation of Casey's table would fall near *invidiosum*, in which, as in *cautum*, the elytra are not truly black (as they are in the present species) and the legs are rufous. The elytra are also relatively shorter and more coarsely striate than in *concurrens*. It is possible that *invidiosum* is not really distinct from *cautum*, and I feel tolerably sure that *digressum* Csy. is the same as *connivens* Lec.

Bembidion sp. dub. (*assimile* group). Dawson; Seward.

Bembidion oblongulum Mann. Seward.
Patrobus septentrionis Dej. Skagway.
Patrobus (Platidius) aterrimus Dej. Ketchikan.
Trechus chalybœus Dej. Skagway; Anchorage; Seward; Kasaan.
Pterostichus crenicollis Lec. Ketchikan.
Pterostichus amethystinus Dej. Kasaan.
Pterostichus validus Dej. Juneau; Kasaan; Ketchikan.
Pterostichus castaneus Dej. Scow Bay; Kasaan; Ketchikan.
Pterostichus adstrictus Esch. Skagway; Juneau; Anchorage; Seward; Scow Bay; Kasaan; Dawson. Nearly all the names under Bothriopterus of the Leng list apply to more or less trifling variations of this ubiquitous northern species.
Pterostichus (Cryobius) riparius Dej. Skagway; Seward; Juneau.
Pterostichus (Cryobius) hudsonicus Lec. Childs Glacier.
Pterostichus (Cryobius) brevicornis Kby. McKinley Park; Dawson.
Pterostichus (Cryobius) sp. near *mandibularis,* and perhaps not different. McKinley Park; Tanana River.
Pterostichus (Cryobius) sp. McKinley Park; Eagle; Dawson. I am unable to place this, even tentatively.
Pterostichus (Cryobius) sp. Anchorage. A single specimen allied to the preceding, but with entirely black palpi, antennæ, and legs.
Amara (Cyrtonotus) eschscholtzi Chd. Dawson.

***Amara (Cyrtonotus) consueta** Fall, n. sp.

Oblong, moderately elongate, form nearly as in *eschscholtzi.* Black, head and thorax polished; elytra minutely alutaceous, moderately shining in the male, slightly duller in the female; antennæ and legs ferruginous. Head not quite two-thirds as wide as prothorax. Prothorax not quite one-half wider than long, base very slightly wider than apex; sides broadly, evenly rounded anteriorly, briefly sinuate before the nearly rectangular hind angles; disc moderately convex, anterior transverse impressed line feeble; median line distinct, abbreviated at both ends; disc in front completely devoid of punctures, basal impressions deep, a little oblique, numerously punctate; hind angles obtusely carinate; base at middle impunctate, side margins narrowly, finely punctured. Elytra (♂) about one-fifth wider and not quite three times as long as the thorax and about three-fifths longer than wide; finely striate, striæ finely but distinctly punctate, obsoletely so near apex. Body beneath black, meso- and metepisterna and

sides of the metasternum and basal segments of abdomen with a few fine punctures. Middle and hind thighs bisetose on inner margin; tarsi with first three joints feebly grooved at sides. Length, 10.5 to 11 mm.; width 3.9 to 4 mm.

Described from six examples taken by the writer at Skagway, Alaska, June 18-21, 1924.

This species is, by a strict interpretation of Hayward's table, to be associated with *infausta* Lec., and is undoubtedly closely allied with both that species and *eschscholtzi,* from both of which it seems constantly separable by the total lack of anterior discal punctuation of the thorax. It seems highly probable that we have too many described species already in this genus, nevertheless I am unable to attach any of the published names to the present species.

Amara littoralis Esch. Skagway; Ketchikan.
Amara remotestriata Dej. White Horse.
Amara interstitialis Dej. Dawson.
**Amara polita* Lec. Eagle.
Calathus ingratus Dej. Skagway; Nenana; Anchorage.
Calathus advena Lec. Childs Glacier.
Platynus stygicus Lec. (|| *maurus* Mots.). Anchorage.
Platynus perforatus Lec. Dawson.
Platynus bogemanni Gyll. Skagway; Dawson.
Platynus quadripunctatus DeG. Anchorage.
Platynus n. sp. ? near *sordens* Kby. Anchorage.
**Platynus nigriceps* Lec. Fairbanks.
Cymindis cribricollis Dej. White Horse.
Harpalus fulvilabris Mann. Eagle.
Harpalus pleuriticus Kby. Dawson.
**Harpalus laticeps* Lec.? Fairbanks. A single non-typical example, somewhat crushed, picked up from the sidewalk.
**Harpalus cordifer* Notm. Juneau; taken also at Goldstream, Vancouver Island.
Harpalus basillaris Kby. White Horse; Eagle.

**Harpalus pacificus* Fall, n. sp.

Body oblong, rather markedly convex, black, strongly shining throughout, the elytra very finely alutaceous. Antennæ and trophi ferruginous, the former scarcely passing the hind angles of the thorax, their intermediate joints fully twice as long as wide; head not quite three-fourths as wide as thorax; eyes moderately prominent. Prothorax slightly more than one-half wider than long; base

a little wider than apex; sides subevenly arcuate, a little more strongly so in front; basal angles obtuse, their apices somewhat blunted but not distinctly rounded; basal foveæ rather strongly, closely punctured, the adjoining surface externally sparsely punctured, the punctures nearly absent at middle of base; sides strongly convexly declivous anteriorly, narrowly and feebly deplanate posteriorly from the middle, the marginal bead translucent posteriorly. Elytra not quite one-half longer than wide, sides parallel; striæ fine, intervals flat with scattered, very minute punctures. Body beneath black, the epipleura not at all paler. Legs rather stout; femora and tips of tibiæ black; tibiæ except at apex and tarsi rufous. Length, 8.5 mm.; width, 3.5 mm.

Ketchikan, Alaska, a single male (type); Scow Bay, one female; Skagway, one male doubtfully referred.

This species in its typical form agrees nearly with the description of *fugitans* Csy. in many respects, including the color of the legs, but in that species the form is said to be unusually depressed, the hind angles of the thorax nearly right, and the pronotal foveæ very shallow and sparsely punctured, none of which statements are at all applicable to the present species.

The Scow Bay and Skagway specimens differ from the type in having the legs predominently rufous, the tips of the femora and tibiæ only being lightly infuscated, the sides of the thorax are also less rounded. In the Scow Bay female the elytra are dull. All three specimens have the mentum emargination virtually without a tooth, although there is an extremely feeble, broadly rounded, prominence detectable on close scrutiny.

Harpalus rufimanus Lec. Dawson.
Trichocellus cognatus Gyll. Seward.
Tachycellus nigrinus Dej. Skagway; Juneau; Scow Bay; Wrangel.

FAMILY DYTISCIDÆ

Cœlambus borealis Fall, n. sp.

Elongate oval, widest at middle of the length, sides of thorax nearly continuous with those of the elytra. Head and thorax flavotestaceous, the former with a dark spot adjacent to each eye and the hind margin narrowly blackish, the latter with the anterior margin narrowly dark, and a small central spot which is diffusely produced to the hind margin. Elytra with the disc broadly fuscoluteous, due to the diffusion of the customary markings, which are, however, somewhat defined when the elytra are viewed very obliquely in the direction of their length. Body beneath black except the head, thorax, and epipleura; legs rufotestaceous; tarsi blackish. Head

alutaceous and sparsely punctulate. Prothorax and elytra polished throughout, the former finely and sparsely punctured on the disc, more closely toward all the margins, more strongly so post-medially; elytral punctures nearly equal in the posterior half where they are separated by about half their own diameters, in the anterior half they are obviously, though not very conspicuously, unequal and somewhat less closely placed. Prothorax one-half wider than the head, the sides moderately divergent and almost straight throughout. Elytra twice as wide as the head and one-half longer than wide. Sides of coxal plates and of the abdomen basally, coarsely closely punctate, the punctures separated by much less than their own diameters; surface of coxal plates strongly alutaceous.

Male. Four anterior tarsi strongly dilated, the second joint of the protarsus visibly wider than the first and as wide as the tibiæ at apex; anterior protarsal claw a little thicker and just visibly shorter than the posterior and more strongly curved basally. Length, 3.7 mm.; width, 1.85 mm.

Dawson, Yukon Territory. A single male taken by the writer June 30, 1924.

This species is very closely allied to *patruelis,* and is possibly only a variety thereof. It differs from all specimens of a numerous series of *patruelis* in my collection by the almost perfectly straight sides of the prothorax and by the strongly alutaceous coxal plates, these being polished and without alutaceous sculpture, except in the dull females, in *patruelis.* The punctuation of the coxal plates in *patruelis* is also less dense than in the present species, the elytral disc is more uniformly punctured, and the tarsi only rarely show any tendency to infuscation.

Hydroporus planiusculus Fall. Scow Bay.

Hydroporus notabilis Lec. Anchorage. Specimens vary considerably in size and indicate the identity of *notabilis* and *arcticus.*

Hydroporus nigellus Mann. Anchorage; Seward; Skagway.

Hydroporus tartaricus Lec. McKinley Park.

Hydroporus melanocephalus Gyll. Dawson; Tanana River; Fairbanks.

Hydroporus polaris Fall. Dawson. A single male of this rare species.

**Hydroporus fuscipennis* Schaum. Fairbanks.

Hydroporus striola Gyll. Dawson.

Hydroporus yukonensis Fall, n. sp.

Allied to *12-lineatus* and *semiclarus.* Moderately elongate, oval; upper surface pale testaceous with blackish markings as follows:

Head with a subtriangular spot each side adjacent to the eyes, these spots confluent with each other and with a posterior marginal line at the middle of the occiput; prothorax with a small transverse spot each side of the middle in the posterior transverse impression and another still smaller at the middle of the sublateral longitudinal impression; elytra each with six narrow discal vittæ and two or three exterior longitudinal dashes, the black vittæ a little wider than the pale stripes between them. Prothorax wider at base, twice as wide as long, and about one-half wider than the head; sides oblique and nearly straight from the base almost to the apical angles; side margins fine but distinct. Elytra about four and one-half times as long, and one-half wider than the thorax, and a little less than one-half longer than wide; sides markedly discontinuous with those of the thorax, subparallel and broadly arcuate in basal three-fifths; feebly sinuate before the apex in the male, obtusely angulate before an apical sinus in the female; the sutural angles acute and well defined in both sexes. Upper surface throughout micro-reticulate and sparsely, finely punctulate. Body beneath black, similarly micro-reticulate and sparsely punctulate; margins of hypomera and epipleura testaceous. Antennæ and legs testaceous, the apical parts of the terminal joints of the palpi and outer joints of the antennæ and the basal two-thirds of the femora infuscate.

In the male the protarsi are a little wider than in the female, with the second joint evidently wider than the first (scarcely wider than the first in the female), and the protarsal claws slightly less slender, though mutually equal and scarcely longer than in the female. The last ventral segment is not appreciably modified in either sex. Length (type male), 4.5 mm.; width, 2.3 mm.

Described from a single pair taken by the writer at Dawson, Yukon Territory, June 24, 1924.

This species is very nearly allied to *semiclarus,* and may prove to be only a smaller Northern race of that species. The two agree in having the male protarsal claws slightly thickened, but the present species, in addition to the smaller size, differs in its somewhat smaller thorax with nearly straight converging sides, the sides being much more rounded in *semiclarus*; *12-lineatus* differs from both by the protarsal claws of the male not at all thickened, the entirely pale femora and the more ample prothorax with sides less strongly discontinuous with those of the elytra.

***Hydroporus alaskanus** Fall, n. sp.

Similar to the preceding species in color, markings, general form and structural features, except as follows: Form a little more elongate, more than twice as long as wide (less than twice as long as wide in ***yukonensis***). Head three-fourths as wide as the prothorax, the latter with sides straight and parallel in basal half to three-

fourths, extremely finely margined; hind angles rectangular; disc with two anterior transverse black dashes parallel with those in the posterior depression; elytra with sides even more strongly discontinuous with those of the thorax. In the male the protarsi are as in *yukonensis,* except that the tarsal claws are virtually as slender as in the female; the last ventral is broadly transversely impressed medially, the apical half flattened or feebly impressed longitudinally at middle. In the female the apex of the last ventral is produced in the form of a short broad deflexed process with converging sides and broadly truncate extremity. Length, 4.5 to 5.3 mm.; width, 1.9 to 2.4 mm. Ratios of length to width in four measured examples are 2.37 (♂); 2.2, 2.2, 2.1 (♀).

Described from one male and seven females, all taken by the writer at Skagway, Alaska, June 18-21, 1924. It is quite distinct from the preceding species by the above characters, and from all allied forms by the peculiar apical process of the last ventral in the female.

*Hydroporus recticollis Fall, n. sp.

Closely allied to the preceding two species, but more especially to *alaskanus* with which it agrees in the short parallel-sided thorax with rectangular hind angles, the nearly straight sides extremely finely margined. The form is more strongly elongate, the thorax smaller than in either of the preceding two species and not much wider than the head; elytra from five and one-half to six times the thoracic length. Black markings of the upper surface heavier than in the preceding species, the thoracic disc becoming diffusely clouded, leaving the margins and a narrow central line pale; the black elytral vittæ much wider than the intervening yellow lines and the external fragmentary vittæ more developed. There is a tendency here, as in all species of the group, for the first and second elytral vittæ to become confluent in a small antemedian spot. The epipleura are entirely blackish. In the male, as in the preceding species, the protarsi are perceptibly more dilated than in the female, the second joint a little wider than either the first or third; the claws mutually equal, slender and not differing sexually. The last ventral is longitudinally medially impressed in apical half in the male. In the female the last ventral is rather abruptly flattened or impressed around the apical margin, which is at middle a little deflexed, but not distinctly produced. The subapical marginal angulation of the elytra in the female is a little more prominent, being nearly rectangular in the present species, obviously obtuse in the two preceding. Length (male type), 5.2 mm.; width, 2.3 mm. In two females the dimensions are 4.9 and 2.15 and 4.8 by 2.15 mm.

Described from one male and two female examples, taken by the writer at Seward (Kenai Peninsula), Alaska, July 18, 1924.

The five species now known from our fauna, in this restricted group having the sides of the elytra of the female subapically angulate, may be tabulated as follows:

Prothorax wider at base than at middle.
  Protarsal claws not differing appreciably in the sexes, femora entirely pale *12-lineatus*
  Protarsal claws slightly thickened in the male; femora blackish in basal half to three-fourths.
    Sides of thorax arcuate throughout ..... *semiclarus*
    Sides of thorax nearly straight ..... *yukonensis*
Prothorax not appreciably wider at base than at middle, the sides virtually straight and parallel in at least basal half; protarsal claws of male not at all thickened.
  Last ventral of female with a broad deflexed apical process ..... *alaskanus*
  Last ventral of female without broad apical process; general form a little more elongate; prothorax smaller and with broad diffuse discal cloud ..... *recticollis*

Agabus hypomels Mann. Ketchikan; Scow Bay; San Juan (Evans Island).

**Agabus inscriptus* Cr. Skagway. I have also in my cabinet a specimen taken at Homer by W. S. McAlpine of Detroit.

**Agabus* sp. Allied to *canadensis*; a single male taken at Fairbanks. It is possible that the *lecontei* Cr. of the Hamilton list may be this.

Agabus infuscatus Aubé. Anchorage.

Agabus anthracinus Mann. San Juan (Evans Island).

**Agabus nigroæneus* Er. Fairbanks.

***Agabus kenaiensis** Fall, n. sp.

Obtusely oblong oval, black, antennæ and legs brownish, the thighs darker, especially the posterior. Body only moderately convex, surface rather strongly shining, minutely alutaceous and with a feebly impressed system of much larger reticulations which are quite irregular in form. Punctuation apparently lacking, except for the usual irregular finely setigerous elytral series and similar irregular series along the front margin and the exterior third of the rear margin of the prothorax. Closer inspection, however, reveals numerous scattered very minute punctures mostly at the intersections of the fine reticulating lines. Head with two faint rufous occipital spots. Prothorax a little less than three times as wide as long, sides feebly arcuate, nearly continuous with the sides of the elytra. Margin moderate, base just perceptibly sinuate each side of the middle. Elytra two-thirds as long as wide, slightly wider at middle than at base, sides subparallel in basal two-thirds. Body beneath alutaceous-reticulate, with a few fine punctures; ventral surface with some

widely spaced oblique very fine striæ, especially on the second segment. Prosternal process roof-shaped; hind coxal plates distant by rather less than half their own length from the middle coxal cavities; hind tibiæ with a few punctures along their inner margin.

Male. Anterior tarsi feebly dilated, somewhat compressed, clothed beneath with rather long squamules bearing at their tips a few small inconspicuous palettes; prosternal claws a little elongate, slender, equal, the posterior with a more pronounced basal sinuation of the inner margin. Length, 6.25 mm.; width, 3.3 mm.

Described from two completely similar male specimens taken by the writer at Anchorage, Alaska, July 14, 1924. They occurred in wet moss.

This species is nearly allied to *confertus,* differing in its much smaller size, somewhat narrower form, elytra without a trace of a sublateral pale spot, last ventral segment of male nearly destitute of the longitudinal strigæ so conspicuous in *confertus.* In the present species the posterior protarsal claw shows the more conspicuous basal sinuation, while in *confertus* it is the anterior claw.

*Agabus gelidus Fall, n. sp.

Moderately elongate, oblong oval, barely perceptibly inflated posteriorly, elytra and thorax nearly continuous in outline; black, moderately shining; antennæ dark rufous; legs piceo-rufous. Very similar in most of its characters to *confertus,* with which it agrees nearly in size and form; the sculpture above consists as in *confertus,* of a system of rather large irregular reticulations within which the surface is more finely reticulate, with sparse, very fine scattered punctures, which may lie either within the meshes or on the reticulating lines. As in *confertus,* the metasternal groove for the reception of the tip of the prosternal process is quite rudimentary. The series of punctures along the inner margin of the hind tibiæ are very few in number, and the present species differs otherwise from *confertus* in the narrower side margins of the prothorax, and notably in the much narrower wings of the metasternum between the middle coxal cavities and the hind coxal plates, this distance being in the present species less than half the distance across the coxal plate, while in *confertus* it is obviously greater than half the width of the coxal plate. The sublateral yellow spot of the elytra is wanting in *gelidus,* and the longitudinal strigation of the last ventral in the male is only feebly developed, there being, however, a broad median impressed area extending from apex nearly to base of the segment, which seems to be wholly wanting in *confertus.* The protarsi of the male are similarly but noticeably more strongly dilated and compressed in *gelidus,* the protarsal claws elongate and sinuate on the inner margin in about the same degree. Length, 8 mm.; width, 4.25 mm.

Described from a single male specimen taken by the writer at Fairbanks, Alaska, July 7, 1924.

Agabus tristis Aubé. Skagway; Sitka; Wrangel; Ketchikan.

Ilybius quadrimaculatus Lec. Wrangel.

Rhantus divisus Aubé. Skagway.

FAMILY HYDROPHILIDÆ

Ochthebius holmbergi Mäkl. Anchorage.

Helophorus inquinatus Mann. Skagway.

**Helophorus lacustris* Lec. ?, McKinley Park.

**Helophorus nitidulus* Lec. Fairbanks.

Hydrobius fuscipes L. Fairbanks.

**Hydrobius scabrosus* Horn. Ketchikan.

**Paracymus moratus* Horn, *var.* Skagway; Juneau. Mr. Liebeck, who has kindly compared specimens with the Utah types in the Horn collection, finds certain small differences which seem to be constant and indicate that the Alaskan form may be distinct.

Laccobius ellipticus Lec. Anchorage.

Cercyon marinus Thoms. Dawson.

Cercyon fulvipennis Mann. Skagway; Anchorage; Juneau.

FAMILY SILPHIDÆ

Necrophorus pustulatus var. *melsheimeri* Kby. Anchorage.

Silpha lapponica Hbst. Anchorage.

Silpha trituberculata Kby. Dawson; White Horse.

Pelatines (Pelates Horn ||) *latus* Mann. Sitka.

Choleva spenciana Kby.? Dawson. Two females. *C. alsiosa* Horn is in my collection from Fort Yukon (Kusche). Although described from Alaska in 1885, this species does not appear in the Hamilton list of 1894.

Colon magnicolle Mann. McKinley Park. A single specimen.

Colon pusillum Horn. Dawson. Two examples.

Hydnobius substriatus Lec. Skagway; Dawson.

**Hydnobius latidens* Lec. McKinley Park.

Anisotoma punctatostriata Kby. Dawson.

**Anisotoma assimilis* Lec. Anchorage.

**Agathidium revolvens* Lec. McKinley Park; White Horse.

**Clambus gibbulus* Lec. Anchorage.

FAMILY SCYDMÆNIDÆ

Lophoderus biformis Mäkl. Sitka; Ketchikan.

*Euconnus longiceps Fall, n. sp.

Of large size (2 mm.) and rather narrow form, polished, impunctate, except for the minute punctures bearing the elytral hairs; brown, with the sutural edge nigrescent basally. Pubescence yellowish-brown, stiff and posteriorly directed on the occiput, similarly rather densely bristling at sides of prothorax; longer, finer, sparser and more reclinate on the elytra. Head much longer than wide, scarcely more than half as wide as the prothorax; sides of the occiput nearly straight and convergent for about four times the length of the small anterior eyes, to the strongly constricted neck, the latter about one-half the width of the head. Antennæ fully half the length of the body, without definitely limited club; second joint subcylindrical, slightly wider apically, twice as long as wide and nearly equal to the two following; three to six equal in width to the second and mutually nearly similar, suboblong, slightly longer than wide; seven to ten gradually wider and becoming a little transverse; eleven not quite as long as the two preceding. Prothorax distinctly longer than wide, sides parallel and arcuate before the posterior lateral constriction, subbasal transverse impression feebly trifoveate at middle and at hind angles, the latter with short carina. Elytra elongate oval, widest at middle, about two-thirds longer than wide and two-thirds wider than the prothorax; basal impression strong, subhumeral and sutural impressions obsolete. Femora moderately clavate; tibiæ wider medially, tarsi rather short and stout, basal joint subequal to the two following; apical a little longer than the basal; hind coxæ subcontiguous. Length, 1.95 mm.; width, .75 mm.

Ketchikan, Alaska, August 1, 1924, a single example sifted from damp moss.

Although possessing the essential characters of Euconnus, this species does not fit very well in any of the groups of the genus established by Casey. The very elongate head should make it easily recognizable among all known species of the genus. The sex of the single individual is uncertain, but the slightly broader basal joint of the protarsus may indicate the male.

*Scydmænus adjutor Fall, n. sp.

Elongate, suboval, only moderately ventricose; black, antennæ and legs brownish ferruginous; surface polished, head and prothorax impunctate, elytra with fine sparse punctulation; pubescence fine, sparse and reclinate or inclined. Head wider than long; eyes rather prominent, subbasal, the tempora very short and rapidly convergent; excavation of the vertex broad and shallow, vaguely biimpressed at bottom. Antennæ gradually incrassate, the eighth joint slightly, the ninth and tenth more distinctly, transverse; joints proportionately nearly as in *pacificus*. Prothorax a little longer than wide, sides moderately rounded in apical half, constricted at basal third; surface coarsely biimpressed laterally within the constriction and with a

short subbasal dorsal transverse impression. Elytra oval, widest near middle, three-fourths wider than thorax, one-half longer than wide; humeri obtusely rounded but evident; basal impressions nearly as in *pacificus*; legs as in *pacificus*. Length (head depressed), 1.2 to 1.3 mm.; width, .55 mm.

Described from two examples taken by the writer at Skagway, Alaska, July 27, 1924.

This species is a Brachycepsis, closely allied to *subpunctatus* and *pacificus*. It is very considerably smaller than either of the two mentioned, and differs from *pacificus* also in its black color (rufotestaceous in *pacificus*), rather more slender antennæ and slightly less ventricose elytra, which are widest more nearly at the middle. There is no apparent indication of sex in either of the two specimens.

Eutheia (Veraphis) scitula Mäkl. Scow Bay.

FAMILY ORTHOPERIDÆ

**Orthoperus scutellaris* Lec. Dawson; Sheep Creek; Yukon River (below Eagle). This species was wrongly transferred to Sphærius in the Leng List.

**Sacium lugubre* Lec. White Horse; Dawson; Fort Yukon.

FAMILY STAPHYLINIDÆ

Olisthærus megacephalus Zett. McKinley Park; Tanana River.

Megarthrus sinuatocollis Lac. Dawson.

Anthobium pothos Mann. Seward.

**Pycnoglypta lurida* Gyll. Anchorage.

Omalium foraminosum Mäkl. Dawson; Sheep Creek, Yukon River (below Eagle).

Omalium sp. Fairbanks.

Phlœonomus lapponicus Zett. Dawson; Anchorage; Fort Yukon (Kusche).

**Arpedium brunnescens* Sahlbg. Skagway; McKinley Park.

Acidota quadrata Zett. Skagway; McKinley Park.

Micrœdus laticollis Mann. Sitka.

Micrœdus austinianus Lec. Seward; Ketchikan.

Pelecomalium testaceum Mann. Skagway; Seward.

Geodromicus ovipennis Lec. Dawson. One example. This specimen agrees well with LeConte's type and cannot safely be referred to the European *plagiatum* (see Leng list), a specimen of which is before me. This latter has the elytra distinctly longer, with less diverging sides.

Ancyrophorus biimpressus Mäkl. McKinley Park.

*Trogophlœus alaskanus Fall, n. sp.

Moderately slender, depressed, sublinear; black, legs black, the tibiæ internally, tarsi, mouth and base of palpi testaceous; antennæ piceous. Upper surface densely, finely punctate and feebly shining; abdomen, especially toward apex, more sparsely punctate and shining; pubescence very short and fine. Head quadrate, hind angles subrectangularly rounded; tempora slightly longer than the eyes, straight and parallel; vertex broadly roundly impressed Eyes small, just perceptibly more prominent than the tempora, attaining the middle of the elytra. Antennæ moderately slender, gradually incrassate, the outer three joints forming a feebly differentiated club; joints four to eight about as long as wide, fourth smallest, eighth just perceptibly transverse. Prothorax equal in width to the head, a little wider than long, front angles nearly right and scarcely rounded, sides broadly arcuate and feebly convergent from just behind the apex; hind angles obtuse and rounded as viewed from above; disc with an oblong impression occupying the apical two-thirds of the length and the middle one-third of the width. Elytra distinctly wider than thorax, subequal in length to the head and thorax combined and much longer than wide. Abdomen slightly narrower at base than the elytra and slightly widened behind, border rather thick but shallow; ventral segments four to six impressed at middle, the fourth very feebly, the sixth broadly and deeply, the apex of the latter behind the impression briefly carinate, the margin broadly angulate medially. Legs moderately slender. Length, 1.6 mm.; width, .45 mm.

McKinley Park Station, Alaska, July 9, 1924; a single example taken by the writer.

This little species belongs to Group IV of Casey's Revision, and by the table would be associated with *indigens*, from which it differs in a number of details, notably the longer elytra, dark legs, and ventral impressions.

*Trogophlœus teres Fall, n. sp.

Closely related to the preceding species, but apparently distinct by the following differences: Size larger (2.3 mm.), elytra piceo-testaceous, legs entirely pale; prothorax slightly wider than the head and relatively more transverse, the impression much larger, extending almost throughout the length, at the base involving almost the entire discal width, but becoming narrower and more vague anteriorly. Elytra even slightly longer than in *alaskanus*, abdomen more distinctly narrowed basally and more strongly punctured, less shining. Ventral segments not impressed.

A single specimen only, taken at McKinley Park Station on the same date as the preceding, but whether the two specimens were taken together I do not recall. There is perhaps a possi-

bility that they are sexes of one species, the difference in color being due to immaturity. This point can only be settled by further collecting. So far as I know these are the first species of the genus to be recorded from Alaska.

Aploderus sp. Female. Ketchikan. This seems much like *princeps,* but without the male definite determination is difficult.

Oxytelus invenustus Csy. ? One female. White Horse. A male example taken at Edmonton, Alberta, on this trip, and others in my collection from Banff, Alberta. and Beulah, New Mexico, appear to possess precisely the male sexual characters described by Casey from his Maryland type.

**Oxytelus suspectus* Csy. Skagway.

Platystethus americanus Er. Dawson.

Bledius turgidus Csy. Yukon River, fifty miles below Selkirk, Y. T.

Bledius sp. Dawson.

Bledius albonotatus Mäkl. ? Skagway.

Stenus bipunctatus Er. Dawson.

**Stenus austini* Csy. McKinley Park; Anchorage. I have also a specimen of this species taken by Wickham at Fort Wrangel; this is, I suppose, one of the two undetermined species mentioned by Wickham in his list.

Stenus pterobrachys G. and H. Juneau; Sitka; Ketchikan.

**Stenus stygicus* Say. Eagle.

**Stenus mammops* Csy. Anchorage.

Stenus cariniceps Mäkl. Juneau; Ketchikan. Ten other as yet unidentified species of Stenus were taken in Alaska. I had hoped to be able before this to compare these with Casey's types, but Mr. Barber writes me that the latter are not yet available for study.

*Lathrobium sollicitum Fall, n. sp.

Form nearly parallel; black, antennæ piceous, base scarcely paler; legs rufopiceous, the tibiæ paler. Head, thorax and elytra polished, abdomen dull from the density of the minute punctulation. Antennæ rather slender, not quite reaching the thoracic base, intermediate joints all feebly obconic and a little longer than wide. Head behind the clypeus subquadrate, sides parallel, hind angles broadly rounded, base truncate at middle, punctures numerous but well separated, median line smoother; eyes at about twice their length from the

base; gular sutures parallel and widely separated; neck one-third the width of the head. Prothorax slightly wider than the head, about one-fourth longer than wide, sides parallel, feebly arcuate, front angles rather abruptly, hind angles more broadly, rounded; punctuation strong, not very close, median line narrowly but indefinitely smooth. Elytra equal in length and in maximum width to the thorax, sides very feebly but perceptibly divergent from base to apex, punctures similar to those of the thorax but rather sparser. Abdomen at base equal in width to the elytra, very slightly widened to apical third, very finely, densely punctulate and dull, both above and beneath. Legs moderately stout, the front thighs thickened but not sinuate beneath. Length, 5.2 to 5.4 mm.; maximum width, .9 mm.

Described from two males taken by the writer at Anchorage, Alaska, July 13-14, 1924.

In these the sixth dorsal abdominal segment is strongly acuminate at apex, the sixth ventral with a very small apical emargination, triangular in form with its apex narrowly rounded.

By its narrow neck, this species should be referred to the group Tartopeus, but does not resemble at all any species therein defined by Casey, unless it be his *lacustris,* which is apparently quite different from the other species of his table, and is seemingly remindful of the more typical Lathrobii. In *lacustris* the elytra are said to be shorter than the thorax, and the sexual characters of the abdomen are not like those in *sollicitum.*

Lathrobium finitimum Lec. Scow Bay.
Lathrobium subseriatum Lec. Kasaan.

***Lathrobium sewardi** Fall, n. sp.

Form moderately slender and convex. Head, thorax, and basal half of elytra brownish piceous or castaneous, apical half of elytra brighter rufous; abdomen piceous, antennæ and legs reddish-brown. Head subquadrate, sides straight and parallel, hind angles broadly rounded, base truncate; eyes small, at twice their length from the base; surface densely punctate at sides and base, less closely so medially. Antennæ attaining base of prothorax, median joints obconical and about one-half longer than wide. Prothorax slightly narrower than the head, one-third longer than wide, widest at apex, sides nearly straight and convergent to base; all angles broadly rounded; punctuation close and confused, median impunctate line subelevated. Elytra as wide as the head, subequal in length to the prothorax, and one-sixth or one-seventh longer than wide; sides parallel, surface coarsely and closely sublinearly punctate. Abdomen very finely not closely punctate.

Male. Ventral segments two to six with median impressions in-

creasing in size and depth, margin of fifth segment broadly sinuate, apex of sixth with suboval or elliptical emargination, its limiting angles sharply subrectangular, the impression anteriorly with a dense patch of short black spicules, narrowly divided along the middle. Length, 5.8 to 7 mm.; width, .9 to 1 mm.

Described from two males and four females taken by the writer at Seward, Alaska, July 18-20, 1924.

This species belongs to Casey's genus Lobrathium and is very closely related to *tacomæ* Csy., differing most notably in color and the less slender antennæ; the secondary sexual characters are nearly identical.

Baptolinus macrocephalus Nordm. Ketchikan; Seward; Kasaan; Skagway.

Philonthus septentrionis Fall, n. sp.

Deep black throughout, polished, elytra with slightly green bronze luster. Head quadrate oval in male, a little more oval in the female; eyes distant their own length from the base of the head. Antennæ barely as long as the head and thorax, entirely black; joints eight to ten as wide or slightly wider than long, the preceding joints slightly more elongate. Prothorax quadrate oval, one-third to two-fifths wider than the head, evidently narrowed in front; dorsal punctures fine, three in number, equidistant. Elytra a little wider than the thorax, nearly square or very slightly transverse; punctuation rather fine and sparse, not distinctly muricate. Abdomen sparsely a little more strongly punctate than the elytra, beneath still more coarsely so.

Male. Anterior tarsi moderately strongly dilated; last ventral with a triangular emargination a little wider than deep, and surrounded by an acutely angulate gutter. Length, 6 to 7 mm.; width, 1.4 to 1.6 mm.

Described from one male and two female examples collected by the writer at Dawson, Yukon Territory, June 24, 1924. This species is of about the size and aspect of *umbratilis,* and may be placed near it. In the latter the tempora are shorter, the thorax less narrowed in front and with coarser serial punctures, the abdomen more finely punctured beneath, and the legs brownish-red.

Philonthus basalis Horn, var. Dawson. Three examples differing from the typical form by having the elytra varied with fuscous.

Philonthus fraternus Fall, n. sp.

Moderately elongate, deep black, shining, tarsi alone brownish.

Antennæ not quite as long as the head and thorax, outer joints nearly square. Head subquadrate, three-fifths as wide as the thorax, the latter as long as wide, distinctly narrowed in front; dorsal punctures four, equidistant. Elytra nearly square, a little wider than the thorax, not at all æneous, punctuation rather sparse. Abdomen a little more finely and equally sparsely punctate.

Male. Front tarsi very broadly dilated, last ventral triangularly emarginate and with a rather deep longitudinal impression tapering forward and extending the entire length of the segment; penultimate segment very broadly angulato-sinuate. Length, 6 mm.; width, 1.4 mm.

Dawson, Yukon Territory, June 24, 1924, a single male specimen taken by the writer.

This species can only be compared with *quadricollis* and *theveneti,* because of the last ventral of the male being longitudinally impressed throughout its length. In both these latter species the sides of the thorax are parallel or very nearly so, while in the present one they are distinctly convergent. *Quadricollis* has the legs and antennæ brown or paler and *theveneti* is said to have the elytra not wider than the thorax.

**Philonthus* sp. Ketchikan. One female in the vicinity of *crotchi,* which it may be.
**Philonthus distans* Horn. Anchorage.
Philonthus siegwaldi Mann. Skagway; Juneau; Port Althorp.
Philonthus nigritulus Grav. Skagway; Dawson.
**Philonthus decipiens* Horn. Wrangel.
**Philonthus sordidus* Grav. Anchorage.
Creophilus maxillosus L. Juneau.
Heterothrops sp. Near *carbonatus,* but probably distinct; Dawson, one female.
Quedius lævigatus Gyll. Seward.
Quedius molochinus Grav. Seward; Skagway; Juneau.
Quedius brunnicpennis Mann. Anchorage; McKinley Park.
Quedius hyperboreus Er.? Anchorage.
Quedius sublimbatus Mäkl. Skagway.
Quedius sp. Childs Glacier.
Quedius peregrinus Grav. Juneau.
Quedius sp. near *æneseens* Mäkl. Fairbanks.
Tachinus nigricornis Mann. Wrangel.
Tachinus instabilis Mäkl. Anchorage; Juneau.

Tachinus circumcinctus Mäkl. Dawson; Tanana River; Fort Yukon (Kusche).

**Tachyporus jocosus* Say. Anchorage.

Tachyporus chrysomelinus Er. Dawson.

Boletobius cincticollis Say.? Anchorage; McKinley Park.

Mycetoporus humidus Say. Eagle.

Mycetoporus nigrans Mäkl. McKinley Park, one example which fits Mäeklin's description very perfectly. His type was said to be from the interior of the Kenai Peninsula.

**Gymnusa variegata* Kies. Fairbanks, one example, differing slightly from a European specimen in my collection.

**Myllæna* sp. Scow Bay; Ketchikan. No species of this genus has hitherto been recorded from Alaska.

Placusa complanata Er. Dawson.

Gyrophæna sp. Anchorage. This is perhaps *geniculata* Mäkl.

**Atheta divisa* Märk. Anchorage; McKinley Park.

Atheta aquatica Thom.? Dawson.

Atheta graminicola Grav. Skagway; Fairbanks; White Horse.

Atheta picipennis Mann. Anchorage.

Acrotona fungi Grav. Skagway; Anchorage; Juneau.

**Gnypeta* sp. Fairbanks. First record of the genus from Alaska.

Gnypeta sp. Dawson.

Aleochara bipustulata L. Anchorage; Fairbanks; Dawson.

Aleochara pleuralis Csy. Dawson.

Dasyglossa prospera Er. Tanana River. The greater number of the Aleocharinæ taken are as yet undetermined.

FAMILY PSELAPHIDÆ

Sonoma parviceps Mäkl. Ketchikan.

Trimium clavicorne Mäkl. Ketchikan, one pair.

**Richenbachia binodifer* Csy. Ketchikan. Scow Bay.

**Rybaxis brendeli* Lec. var. Anchorage.

**Tychus cognatus* Lec. Seward; Ketchikan.

FAMILY PTILIIDÆ

Ptenidium pullum Mäkl. Scow Bay.

Acratichis (*Trichopteryx* || Kby.) *sitkænsis* Mots. Sitka.

Acratrichis laticollis Mäkl. Seward.

Acratrichis sp. Anchorage.

Acratrichis sp. McKinley Park.
Acratrichis three species. Dawson.

FAMILY HISTERIDÆ

Hister (Psilocelis) subopaca Lec. var., or very closely allied species. Dawson, one example; White Horse (Kusche).

FAMILY LAMPYRIDÆ

***Podabrus comes conspiratus** Fall. n. var.

This name is proposed for a form of which a single example was taken at Skagway. It may or may not be a form of the Californian *comes,* the amount of variability of which within specific limits is not definitely known. The present specimen differs from all my *comes* (so labelled) by the slightly more transverse thorax, which is a little less rounded on the sides and without visible sinuation at the hind angles, which are not perceptibly prominent. The thorax also lacks the median eroded line and has the front margin blackish at middle. It agrees otherwise in color with the typical *comes* except that the posterior ventral segments are not margined with yellow, the terminal segment being merely feebly paler at tip. Length, 14 mm.

Skagway, Alaska, June 18-20, 1924; a single female.

***Podabrus tetragonoderus** Fall. n. sp.

Moderately elongate, black, clypeus at sides, sides of prothorax and basal three joints of antennæ beneath, yellow; elytra with a grayish aspect due to the rather plentiful ashy pubescence. Antennæ longer than half the body; second joint a little narrower but subequal in length to the third (♂), or a little shorter than the third (♀); third joint subtriangular, a little longer than wide, distinctly wider than the fourth in the male, less noticeably so in the female; following joints nearly parallel-sided, becoming gradually more slender, the fourth a little more than twice, the outer joints fully three times, as long as wide. Head (♂) just perceptibly narrower than the thorax; eyes moderate; the eyes less prominent and the head narrower in the female; clypeus and front as far back as a line joining the posterior part of the eyes nearly smooth; occiput closely, rugosely punctate but shining. Prothorax quadrate, a little wider than long, not or barely perceptibly wider near the front angles; sides nearly parallel and straight; a very faint sinuation before

the sharply defined hind angles, front angles rounded, posterior discal elevations rather strong and situated within the broad dorsal black stripe, which is dilated behind the middle; surface distinctly but not deeply punctate throughout, more finely so in the yellow margins and between the discal elevations; median line finely eroded in posterior two-thirds. Elytra finely scabrous punctate. Legs black, front tibiæ in the single female a little dilute in color. Claws (♂) finely cleft, the inner portion approximate to, and nearly as long as, the outer on the front and middle feet, much shorter but still finely acute on the hind feet. In the female the inner portion of the claw is much shorter than the outer on all feet, and the claws might perhaps better be described as having a basal dilatation with the free angle sharply acuminate. Length, 7 to 9.5 mm.

Described from three males and one female, taken by the writer at Skagway, Alaska, June 18-20, 1924.

This species will not enter any of LeConte's groups as defined though coming nearest to Group C. There are other species in my collection with ungual characters similar to the present one and I hope shortly to publish already prepared descriptions of these and other new species of the genus.

***Podabrus fissilis** Fall, n. sp.

Black, feebly shining; muzzle and two or three basal joints of antennæ beneath rufotestaceous. Antennæ slender; second joint but little more than half the third in the male, a little shorter than the third in the female. Head conspicuously wider than the thorax (♂), or subequal in width to it (♀); surface alutaceous and opaque, front sparsely punctate. Prothorax small, nearly as long as wide in the male, front angles obliquely subtruncate, sides a little convergent thence to the somewhat prominent hind angles. There is a small rufescent marginal spot just behind the front angles in the male which is entirely lacking in the female. Prothorax finely punctate and alutaceous, sculpture as usual. Elytra very finely scabrous; tarsal claws all finely cleft in the male, the inner part shorter on the posterior four feet; all claws toothed at base in the female. Length, 6 to 7 mm.

Described from a single pair (type male) collected at Emerald Lake, British Columbia, by Dr. A. Fenyes. This is

the first nearly entirely black species to be described having tarsal claws all finely cleft in the male.

Since writing the above description I have taken a single male of this species at Skagway, Alaska.

Podabrus piniphilus Esch. Skagway; Seward. The Seward example (male) may be different.

**Podabrus extremus* Lec. Skagway.

**Podabrus lævicollis* Kby. Anchorage.

FAMILY CANTHARIDÆ (TELEPHORIDÆ)

Cantharis (Telephorus) mandibularis Kby. (= *nigritulus* Lec.). Eagle; Skagway; McKinley Park; Dawson; White Horse. This is a common species in Alaska and ranges across the northern part of the continent to New Hampshire. *Mandibularis* has long been erroneously placed as a synonym of *fraxini* in our literature, but the above synonymy is definitely established by comparison with one of Kirby's cotypes.

**Silis difficilis* Lec. Skagway.

FAMILY MELYRIDÆ

Dasytes hudsonicus Lec. Skagway; White Horse; Dawson; Eagle; Fort Yukon; commonly beaten from spruce.

FAMILY CLERIDÆ

Thanasimus undulatus Say. Dawson.

Trichodes ornatus Say. Dawson.

FAMILY CORYNETIDÆ

**Necrobia violacea* L. Dawson; Fort Yukon (Kusche).

FAMILY MORDELLIDÆ

**Anaspis atra* Lec.? Dawson; Eagle.

Anaspis sericea Mann. Skagway; Sitka; Seward.

FAMILY PYTHIDÆ

Priognatha monilicornis Rand. Skagway.

FAMILY ANTHICIDÆ

Anthicus melancholicus Laf. Dawson.

FAMILY ELATERIDÆ

Athous ferruginosus Esch. Skagway; Sitka; Ketchikan. As Dr. Van Dyke has pointed out in his recently published Katmai List, this is but a slight variety of *rufiventris* Esch., which is the older name.

(*To be continued*)

TWO NEW SPECIES OF THRIPS FROM CALIFORNIA

BY ARTHUR C. MASON

Bureau of Entomology, U. S. Department of Agriculture [1]

Hoplandrothrips sycamorensis Mason, new species

Female. Length, 2.11 mm. Color uniformly dark brown, with a very little scattered red hypodermal pigmentation; tarsi, fore tibiæ, and bases of antennal segments III to VI light brown.

Head nearly 1.5 times as long as broad, widest immediately behind the eyes and converging slightly posteriorly; frons overhanging about half of the first antennal segment. Cheeks nearly straight and somewhat roughened with small warts, and having several very short blunt spines. Postocular bristles short, dilated, and truncate at tip. Ocelli small, circular and equidistant, placed between the eyes; anterior one near the end of the vertex and the posterior pair about opposite the center of the eyes. Eyes small, occupying little more than one-fourth of the length of the head. Mouth-cone long, almost reaching the mesothorax and running to a sharp point. Antenna eight-segmented and one and one-fourth times the length of the head. First two segments concolorous with the head, III light yellow with a little brown shading near the tip, IV to VI yellow at base, shading into brown, VII and VIII light brown, VII having a very little yellow at base. Segment I a short truncated cone, II cup-shaped with a rather pronounced pedicle, III wedge-shaped with rounded apex, IV and V ovate with narrowed pedicle, IV being considerably wider than V, VI fusiform, VII truncate ovate, VIII conical with a blunt tip.

Prothorax little more than half as long as the head and about twice as wide as long, sides diverging rapidly posteriorly; one rather prominent but short spine on the anterior margin and a row of five spines on the posterior margin, the first of them being especially heavy. All spines dilated and truncate at tip.

Pterothorax slightly wider than the prothorax and narrowed somewhat posteriorly. Wings rather short and colorless, except for a little yellow shading at the extreme base; three blunt spines at base of fore wings, five to nine (usually eight) interlocated hairs on posterior margin. Legs rather long, the fore femora being heavy and thickened; fore tibiæ and extreme tips of others light yellow. Fore tarsi armed with a short, stout tooth near base.

Abdomen large, tapering gradually after the fourth segment and rounded abruptly from the seventh; provided with numerous blunt

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colorless bristles, the posterior ones and those at the end of the tube being nearly as long as the tube. Tube half as long as the head and tapering gradually.

Measurements: Head, length 0.32 mm., width 0.23 mm.; prothorax, length 0.18 mm., width 0.37 mm.; pterothorax, width 0.38 mm.; abdomen, greatest width 0.408 mm.; tube, length 0.15 mm., width at base 0.073 mm., width at apex 0.043 mm.; antenna, total length 0.41 mm.

Segment	1	2	3	4	5	6	7	8	
Length	34	54	67	72	59	49	46	28	microns
Width	43	35	38	39	32	29	25	16	microns

Male slightly smaller and with more red pigmentation; otherwise similar in appearance. Length, 2.03 mm. As with the females, the fore tarsi are provided with a stout tooth and in addition they have a smaller tooth on the inside of the fore tibiæ near the base and also a very small one opposite this on the femur.

The larvæ are light yellow to colorless, and live under the bark of the host. Winter is passed in the egg stage, under the bark.

Described from five females and one male taken under bark or on the leaves of sycamore trees at Springville, California. Type in author's collection.

This species is close to *H. xanthopus* Hood, but differs in many characters, including larger size, darker color, absence of most of the red pigmentation, shorter postocular and prothoracic bristles, etc.

Zygothrips californicus Mason, new species

Length, 1.35 mm. Color brown to dark brown or fuscous; legs concolorous with the body; antennal segment III yellow, IV to VIII light brown.

Head slightly longer than broad, rounded in front and slightly diverging posteriorly, reaching the widest part about three-fourths of the way back, then narrowing slightly to the posterior end. Cheeks smooth. Postocular bristles very small and blunt. Eyes rather small, occupying about one-fourth of the length of the head and one-third of its width. Ocelli rather large, the posterior pair being opposite the anterior third of the eyes and the anterior one being directed forward. Mouth-cone contracted, reaching about two-thirds across the pronotum, bluntly rounded. Antenna eight-segmented, one and one-half times the length of the head; bristles short but sense-cones rather conspicuous. First two segments concolorous with the head; III light yellow; IV to VI brownish-yellow to light brown; VII and VIII light brown. Segment I a short truncated cone; II ovate; III clavate with a broad base; IV ovate, tapering abruptly to a narrow base; V barrel-shaped; VI cylindrical, with nar-

rowed base; VII oblong and slightly tapered at tip; VIII conical, tapering gradually to a rather sharp point.

Prothorax about three-fourths as long as the head and nearly twice as wide as long, the sides gently diverging and broadly rounded at the posterior end; prothoracic bristles short and blunt.

Pterothorax slightly wider than the prothorax, sides nearly straight and converging slightly posteriorly. Wings large and clear, with long membrane extending to or slightly beyond the end of the tube. Fore pair somewhat constricted in the middle and with nine to eleven interlocated hairs on the posterior border. Legs long, femora enlarged, the fore femora especially being much thickened; fore tarsi unarmed.

Abdomen rather heavy, width about four-ninths of the length, and tapering rather abruptly from the fifth segment to the tube. Tube less than half the length of the head; terminal bristles little more than half the length of the tube.

Measurements: Head, length 0.229 mm., width 0.209 mm.; prothorax, length 0.152 mm., width 0.276 mm.; pterothorax, width 0.304 mm.; abdomen, greatest width 0.342 mm.; tube, length 0.098 mm., width at base 0.057 mm., width at apex 0.033 mm.; antenna, total length 0.328 mm.

Segment	1	2	3	4	5	6	7	8	
Length	25	41	49	56	49	41	41	21	microns
Width	32	29	29	37	29	25	18	10	microns

Described from a single female taken on an orange tree at Orange Cove, California. Type in author's collection.

Close to *Z. harti* Hood, but differing in the following characters: Larger size, antennal segments IV to VIII lighter colored, prothoracic bristles blunt, clear fore wings and with 9 to 11 interlocated hairs, contracted mouth cone, and tube less than half the length of the head.

NOTES ON PARASITES AT SATICOY, CALIFORNIA, DURING THE YEAR 1925

BY STANLEY E. FLANDERS

Saticoy, California

On February 28 a braconid of the genus *Monogonogastra* was reared from a walnut twig which contained the dead larvæ of *Polycaon confertus* Lec. During April numbers of these dusky-winged, red-bodied braconids were observed about the walnut leaves. One individual was seen December 4.

Through June and July a number of the metallic-blue ichneu-

mon-flies *Amblyteles cæruleus* (Cr.), and the yellow and black *A. zebratus* (Cr.) were reared from the pupæ of *Sabulodes forficaria* Guen.

Hovering about the blossoms of a large eucalyptus tree on April 2 were many of the syrphid parasites, *Homotropus decoratus* (Cr.).

During October a black chalcid, *Zatropis tortricidis* Crawford, was reared from the lima-bean pod-borer, *Etiella zinckenella* Treit. It pupates free in the pod, and is in the pupal stage seventeen days.

On June 11 the gray, oval larvæ of a species of *Euplectrus* were observed in a cluster on the dorsum of a caterpillar of *Sabulodes forficaria*. Later, several of these parasitized caterpillars were found.

From the pupæ of the lichen caterpillar, *Illice nexa* Boisd., a number of specimens of the tachinid, *Pseudochæta argentifrons* Coq., were reared in May.

On June 20 three females of *Epiurus* sp. (possibly *Pimpla albipes* Cr. described from Mexico) were reared from *Archips argyrospila* Walk. Their silken cocoons were spun on walnut about the remains of the caterpillar.

Six small chalcids of the genus *Elachertus* were reared in June from a caterpillar of *Archips argyrospila*.

On April 29 a walnut aphis, *Chromaphis juglandicola* Kalt., was found parasitized by *Aphelinus perpallidus* Gahan. It is only occasionally that such a parasitized aphis is found.

While collecting codling moth larvæ from burlap bands on walnut trees during March, a light brown ichneumon-fly, *Exetastes* n. sp., was taken from a codling moth cocoon.

Between May 1 and July 21 twenty-four tachinids of the genus *Lixophaga* were reared from three hundred overwintering codling moth larvæ. The maggot pupates within twelve hours after leaving the caterpillar. The length of the pupal stage was nineteen and twenty days.

The identification of the parasites noted were kindly made by the specialists, R. A. Cushman, A. B. Gahan, S. A. Rohwer, J. M. Aldrich, and P. H. Timberlake.

SEX-LIMITED POLYCHROMATISM IN *LASIOPHTICUS PYRASTRI* (LINN.)

BY E. L. KESSEL

Early last June I collected a large population of the common syrphid fly *Lasiophticus pyrastri* (Linn.) on the University Farm at Davis, California. This series, which was taken by sweeping so as to be representative of the fauna, numbered 277 individuals. When a classification was made, there were found to be 235 specimens of the normal bicolored phase, of which number 98 were females and 137 were males. This is a decidedly unbalanced sex ratio. The remaining 42 members of the population were of the melanic variety, described by Curtis as *unicolor*. It was observed that all of these melanic flies were females, and it is interesting to note that when their number is added to the 98 females of the bicolored type there appears the well-balanced sex ratio for the whole population of 140 females and 137 males.

The above data lead to the conclusion that the melanic form *unicolor* appears only in the female sex. Moreover, Curtis, in his description of this variety, gives the impression that he had but one specimen, and his colored illustration is definitely that of a female. Still more evidence was obtained from an examination of the material in the collection of the California Academy of Sciences. This series contains thirteen specimens of *unicolor* collected in various parts of California, and all of these are females. The evidence, therefore, appears to be conclusive.

An intermediate form, although comparatively rare, also occurs. I took three specimens of this variety in Davis last June, but these were obtained by selective collecting. They are characterized by having the yellow markings persisting on the second abdominal segment, although they are much reduced in size. The California Academy of Sciences has one such individual collected by Dr. E. C. Van Dyke on Mount Ranier, Washington, in 1920. Two other specimens are cited by Cole and Lovett in their "Diptera of Oregon." All six of these intermediates are also females. We may, therefore, assume that this variety, as well as the completely melanic one, is sex-limited to the female. The species, therefore, appears to be an example of sex-limited polychromatism, in which there is only one type of male but three types of females.

THE PAN-PACIFIC ENTOMOLOGIST

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E. P. VAN DUZEE, Editor F. E. BLAISDELL, M. D., Treasurer

Through an oversight the legend was omitted from the plate of *Hypolimnas bolina* L. in the October number of this journal. A gummed slip to be attached to this plate is enclosed.

On March 23 the Pacific Coast Entomological Society gave a complimentary dinner to Dr. and Mrs. William Barnes of Decatur, Illinois, and Dr. and Mrs. R. J. Tillyard of Nelson, New Zealand. Dr. Barnes gave the society an interesting account of his work on the North American Lepidoptera and Dr. Tillyard on his work at the Cawthorn Institute of Scientific Research at Nelson. Dr. Barnes spent several days at the Academy of Sciences, and his suggestions added much of value to the Academy collection of Lepidoptera.

The recent death of Mr. Richard H. Stretch at his Seattle home has removed one of the few remaining landmarks of early western entomology. About fifty years ago he amassed a very complete collection of the Bombycine moths of the world. This he presented to the University of California. So much of this collection as has escaped the ravages of pests has recently come into the care of the California Academy of Sciences as a permanent loan, where it will be accessible to those interested in the published work of Mr. Stretch.

Mr. E. Piazza, well known to our Lepidopterists as a successful collector of moths, died in New York, March 9, 1926, while on his way to England to visit his sister. Although an invalid for years he has been able to do much valuable work in the collection of moths for Scientific Institutions.

Through the generosity of friends we are able to give our subscribers sixteen extra pages in this number of the *Pan-Pacific Entomologist*. This enables us to include two larger papers that otherwise it would have been impossible to publish in full. The April number should follow this with little delay. The October number was mailed January 16, 1926.

Dr. F. E. Blaisdell writes us that it will be impossible for him to determine Coleoptera for his correspondents after September 1, 1926, and asks that we call the attention of coleopterists to this notice.